

A Teacher Extraordinaire

04.11.1924 - 20.06.2005

PK SRINIVASAN

Book of Reminiscences



#PKS100



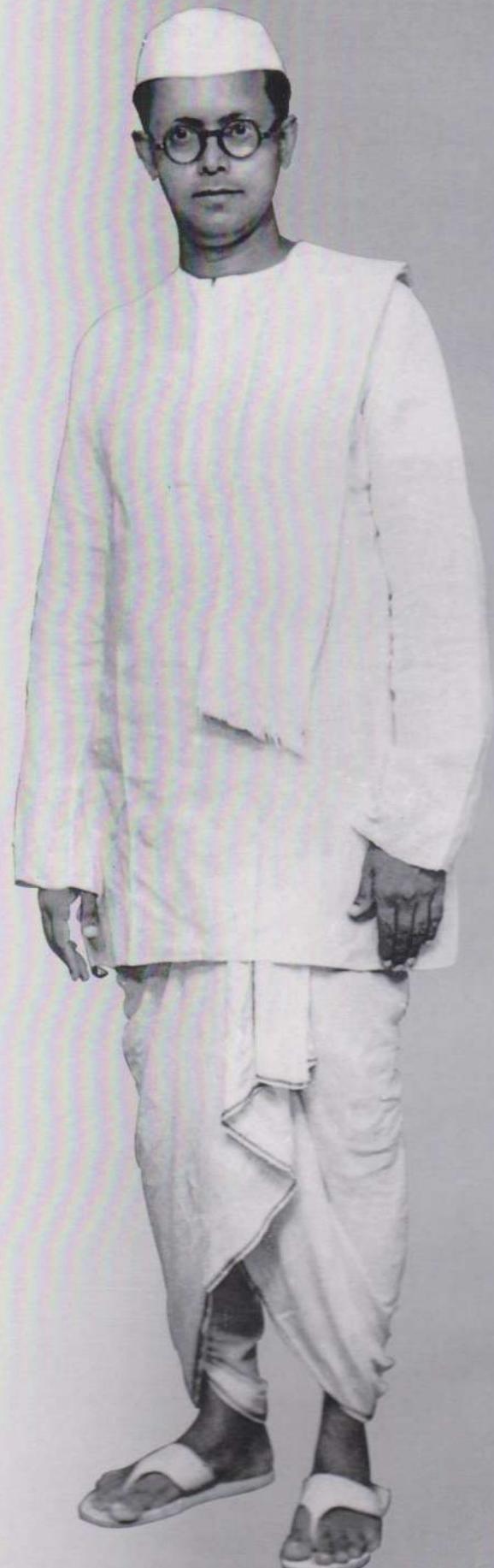
Dedicated to our beloved mother

Mrs. ALAMELU SRINIVASAN



Birth Date Magic Square

04	11	19	24
16	22	05	15
26	17	14	01
12	08	20	18



Birth Centenary Magic Square

04	11	20	24
15	27	09	08
30	16	07	06
10	05	23	21

Remembrance day Magic Square

20	06	20	05
07	19	13	12
02	11	08	30
22	15	10	04

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Preface

Preface to the Biography of My beloved father Shri. P.K. Srinivasan

In the expansive realm of mathematics, few figures shine as brightly as my father Shri P.K. Srinivasan, a legendary math educator and mathematician whose contributions continue to resonate within the field. As an architect of innovative theories and a mentor to countless students, Srinivasan's journey is a testament to the power of passion, perseverance, and intellectual curiosity. This biography aims to explore the remarkable life of a man whose work has not only advanced mathematical thought but has also inspired generations of mathematicians around the globe.

This biography is not only a tribute to my father Shri P.K. Srinivasan's formidable achievements but also an invitation to delve into the life of a mathematician who embodied the spirit of exploration and discovery. Through meticulous research, personal anecdotes, and reflections from those who were lucky enough to know him, we aim to paint a comprehensive portrait of a man whose far-reaching impact transcended the confines of academia.

His passion for mathematics intertwined with a remarkable endeavour to bring the genius of Srinivasa Ramanujan into the limelight. My father's tireless efforts culminated in numerous letters, articles, and exhibitions dedicated to Ramanujan, who became a symbol of India's intellectual capabilities and resilience against colonial oppression. His work not only celebrated Ramanujan's contributions but also served to ignite a sense of pride in India's mathematical heritage among young learners.

My father Shri. P.K. Srinivasan's unwavering devotion to Srinivasa Ramanujan was unparalleled, manifesting in his extraordinary commitment to honouring

Ramanujan's legacy for over fifty years. Every year, he meticulously organized commemorative events for both Ramanujan's birth and death anniversaries, planning weeks in advance. He would select the venue, invite esteemed speakers, and personally send handwritten invitations to hundreds, encouraging them to join in celebrating Ramanujan and paying homage to his remarkable contributions.

My father found unwavering companionship in my mother, whose understanding and strong support were critical to his ability to conduct over a hundred math expos, events that demanded a robust support system. I witnessed many late-night sessions where my mother would prepare paste to construct math models from paper and cardboard, aiding my father's creative projects selflessly.

As Professor Rangachari aptly remarked, it is unlikely that we will encounter another person like my father. His life and accomplishments merit an extensive biography, and we have endeavoured to compile letters and reminiscences from many esteemed individuals who shared personal experiences of this remarkable son of the soil, who lived a life dedicated to our beloved nation. Many of the writings included in this collection are based on video interviews conducted with me during 2007-2008, when I travelled to various academic institutions where my father had made significant contributions. I consider it a privilege to have walked in places that held the essence of his spirit.

The extensive collection of mathematical literature he amassed is a testament to his insatiable quest for knowledge. His unmaterialistic lifestyle and refusal to chase fame or fortune exemplified the beauty of a simple lifestyle intertwined with high intellectual pursuits. His methodical approach to reading newspapers—starting with marking significant news and adding brief comments page by page—reflects a deep understanding of the political and social landscape of the time.

Kannan Srinivasan
S/o Shri P.K. Srinivasan

The Rebellious Math Teacher

The story of one man, and his rebellion against the post-colonial Indian (and African) education system. His mission: to ignite an educational revolution where every mind mattered. His foe: the deeply entrenched Macaulay mindset. His weapons: Sacrifice, Perseverance, and a Gandhi Cap.

Ko Sesha

The year 1924 saw some high-impact events in India - the commencement of Vaikom Satyagraha by Sree Narayana Guru, Mahatma Gandhi's longest public fast that lasted 21 days, and the birth of a spindly brown baby in Madras province on a fuzzy November morning.

This little one grew up to have grand dreams for the country, for which he made great sacrifices. His name was P.K. Srinivasan, or just simply PKS - to the ones who knew him. While I intend to, if his blessings come through, expand my narration of his story into a book or a film or both later on, here, I seek to present somewhat of a pitch.

Before I begin with the beginning, a disclaimer is in order. My aim is to narrate the life and journey of P.K. Srinivasan, the man. I do not intend to delve into the technicalities of his

teaching methods or mathematical concepts, as I do not possess the academic expertise to touch upon them.

Child of Hope

P.K. Srinivasan was born on 04.11.1924 (*Aippasi Avittam, Ashtami*) as the eldest child of Panchalam Kothandarama Iyengar, an Upper Division Clerk in the DGP Office, and





Seshammal. Belonging in the same *Harita Gotra* that produced some legendary social revolutionaries such as Sri Ramanujacharya and Subramania Bharati, he grew up as a curious, yet disciplined boy. He mastered Tamil, Telugu, Sanskrit, and English at a young age.

His penchant for reading was kindled by his uncle, Rangaramanuja Iyengar, who was the first Indian teacher at St. Bede's School, who had a vast collection of books, which were inherited by Srinivasan. These books became Srinivasan's prized possessions, and early companions. They would travel with him in a separate trunk, wherever he travelled as a teenager. He had a knack for keeping them new - so much so, in a parallel universe, he

could have been awarded a doctorate for a thesis titled - "A Guide to Preventing Books from Getting Dog-eared and Musty".

The teacher in him bloomed fairly early. While still a school student at Ramakrishna Mission School, Srinivasan would hold friendly classes and doubt-clearing sessions for his classmates under the shady trees of Panagal Park. Srinivasan grew fast, joined Loyola College, from where he graduated in Mathematics in 1947.

Looking at his sharp, eloquent mind, and the new-found future India's Freedom promised, his father Kothandaramar, who had sold property to fund the education of Srinivasan and other children, had big dreams for him. He hoped Srinivasan would become a bureaucrat of repute who would bring both honour and financial prosperity to the family. But Srinivasan had different plans.



"Go Back to the Villages"

Mahatma Gandhi gave the clarion call - "Go Back to the Villages", which rang loudly in Srinivasan's ears, who had by then already dedicated his heart to the Mahatma. Much to Kothandaramar's rankle and disappointment, the 23-year old Srinivasan, immediately packed two trunks - one with his Khadar clothes, and paraphernalia, and another with books. It was a bolt out of the blue for his parents that their eldest boy, their vessel of hope, brought up in a city life, who had



neither cooked, nor cared for himself before, was determined to move to some desolate village and become a teacher to do the Mahatma's bidding.

After much debate, it was decided that two of his sisters - Chandra and Vasundara — would be sent with him. The trio left home, and reached a remote village near Sulur, in Coimbatore District, called Lakshminackanpalayam. Srinivasan took charge as a teacher in the rural school, while enrolling his sisters in the same school to further pursue their education.

At the altar of his family's sacrifice, began Srinivasan's lifelong commitment - to Mahatma Gandhi, to teaching Mathematics, to country-building, and to breaking free from the chains of Colonialism that sought to keep Indians as first-class copycats, second-class intellectuals and third-class citizens of the World.

Months flew by, and Kothandaramar, still secretly hoping he could veer his son back into his bureaucrat dreams, thought marriage might knock some sense into Srinivasan's head. He arranged meetings with prospective brides. But Srinivasan was adamant here too - he would only marry an educated woman. He grew frustrated that none of the girls he met had studied beyond the fifth grade. For Srinivasan, having a partner with an intellectual spirit, who valued learning was non-negotiable.



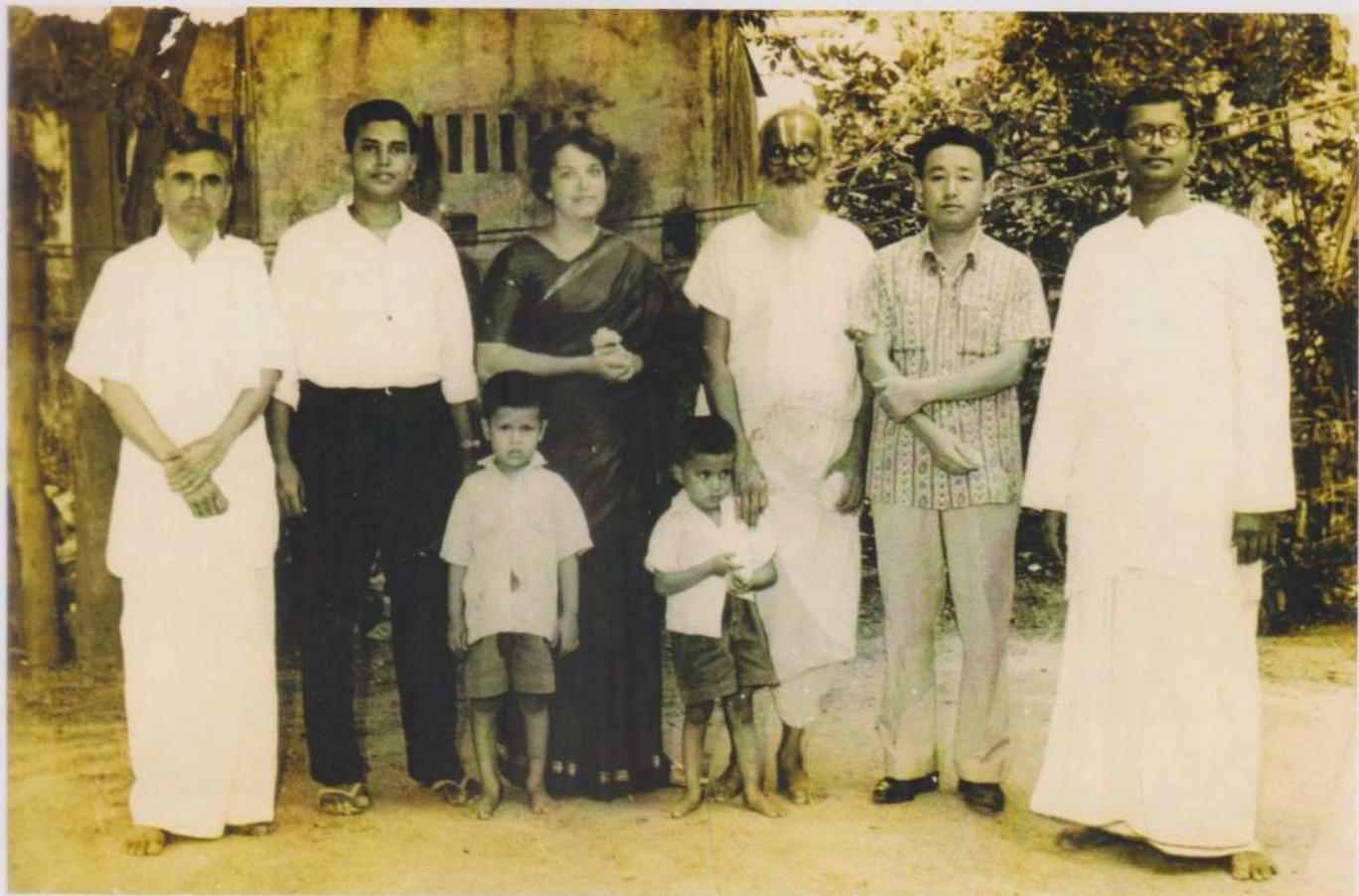


Just as his father was beginning to lose hope, they came across Alamelu, a 21-year-old girl from Srirangam. Though from a simple family, Alamelu had grown up like a princess, carefree and bright, the cherished daughter of a loving father. What caught Srinivasan's attention wasn't just her beauty - it was the rows of books on her shelves and the fact that she had completed her Pre-University Course (PUC). She knew Urdu, was eloquent in English, and was a Hindi teacher in a local school. In a time when few women were formally educated, Alamelu stood out. And Srinivasan was beyond smitten.

For him, it was love at first sight. He made it clear to his father - he would marry Alamelu, or he wouldn't marry at all. Alamelu, who was initially hesitant, was convinced by the words of her father, who saw a man of integrity in Srinivasan. The families didn't even bother

to check if their horoscopes matched. They believed that the union was ordained by Lord Venkatachalapathy Himself - for - he was "Srinivasan", and she was "Alamelu"! The marriage happened in 1949, and Alamelu, who had lived her entire life in the holy and urban precincts of Srirangam till then, was whisked away to Lakshminackenpalayam by Srinivasan immediately after the wedding.

Their marriage wasn't just a bond of love but of companionship. Srinivasan often told his wife, "I was born to teach". As a ritual that continued well into the last of his school teacher days — each night, after a long day of teaching, as Alamelu boiled water for his bath with a firewood stove, Srinivasan would narrate the events of his day. He shared the questions his students had asked, the bright sparks he saw in them, and the challenges he faced. Alamelu, listening intently, became



not just his wife but his confidante, his conscience-keeper, and his silent partner in the pursuit of knowledge for the decades to come.

Years passed, and by now, while his sisters were back in Madras, Srinivasan and Alamelu had started a small family.. Life was arduous and often hazardous for them. Snakes were frequent visitors at their dwelling, Alamelu would travel miles to fetch water, latrines were not available, electricity was sporadic at best, and once, their toddler, Hemaprabha, almost fell into an open well! Undeterred by these hardships, Srinivasan and Alamelu trudged on, moving from village to village.

Srinivasan, driven by a desire to instil a love for mathematics among village students, went beyond traditional teaching methods.

He began experimenting with innovative approaches to make mathematics more engaging. One of his standout efforts was organising exclusive mathematics exhibitions, which later evolved into large-scale expositions. These events provided rural



students an escape from learning phobia, and offered them interactive experiences, allowing them to explore mathematical concepts in creative and accessible ways.

“Kullaa Vaadhyaar”

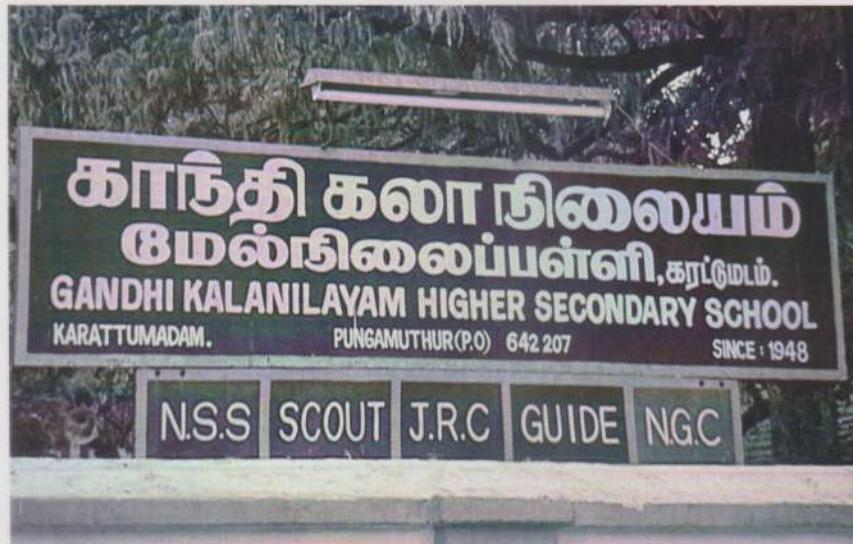
After spending 5 fruitful years teaching in various schools in various villages in the Kongu area of Tamil Nadu, including serving as the Headmaster of Gandhi Kala Nilayam School founded by S.T. Subbiah Gounder in Karattumadam, Udumalaipettai, Srinivasan returned to the bustling city of Madras in 1952, along with Alamelu and two children. They moved into their family home at 10, Jubilee Road, West Mambalam. He joined Muthialpet High School, located near the harbour as Mathematics teacher. The students here too, were from underprivileged backgrounds – majorly fishermen’s children and other children who came from families that had no or little exposure to education. Srinivasan’s mien that consisted of *Khadar Jibba* a Gandhi *Kullaa*, and round spectacles earned him several sobriquets including “Netaji” and “Kullaa Vaadhyaar”. For the

next 23 years, until he would eventually opt for voluntary retirement, he served Muthialpet High School as a Mathematics Teacher, and later as Headmaster.

When Srinivasan saw a student, he was blind to their caste, religion, or background. To him, every child was simply a curious young mind waiting to be transformed. He believed that education transcended all social barriers and that a passion for learning could uplift anyone, no matter where they came from. His classrooms were a sanctuary of equality, where every student had the same potential to grow and succeed.

Several have recounted his efforts to ensure that parents did not discontinue their wards’ schooling, to engage them in generating income for the family. He would personally visit families, pleading with fishermen not to send their adolescent sons to the sea at the expense of their studies. To prevent dropouts, Srinivasan often offered to cover the costs himself - whether it was compensating for lost income, paying school fees, or providing notebooks, and did whatever it took to have them back in school.

As recounted by R G Chandramogan, the Founder of Hatsun Foods, and one of Srinivasan’s students in Muthialpet High School — Srinivasan sought to instil a philosophy in the minds of his students, that mediocrity was not acceptable and that the purpose of education was much higher. He narrates an incident





when Srinivasan called for a combined congregation of two of his classes on the last day of their batch and in his address, told them thus:

"The purpose of my teaching is not to make *gummastas* out of you. It is for you all to become leaders of this society, to become changemakers. Twenty years later, if you happen to see me on the road - do not come and introduce yourself to me, if you are doing an ordinary job somewhere, taking orders from someone, and just about earning a living doing so. If you do, I will lose my sleep that night. I will consider myself a failure as a teacher. Come and introduce yourself to me, if you indeed become a changemaker in this society..."

Chandramogan, whose father owned a small provision shop near Georgetown, considers this speech as something that kindled his quest towards excellence, something that

he took seriously. He started a brand called Arun Icrecreams, and built it 'cup by cup'. He narrates how he tracked down his teacher Srinivasan, after his company grew to a point where it employed over 1000 people, and introduced himself proudly to Srinivasan as one of his "old students". Chandramogan would later go on to becoming an industry leader through his sheer temerity and inspired resilience, who would be listed by Forbes as a Billionaire with a networth of \$2.3 Billion. He would also play another important role in Srinivasan's journey, which we will come to, shortly.

Rediscovering Ramanujan

Srinivasan's tryst with the great Indian mathematician Srinivasa Ramanujan began sometime in the 1940s when he read a small essay on Ramanujan that was published in the magazine "Indian Scientists". Srinivasan

was intrigued about the fact that it hardly contained any information on who Srinivasa Ramanujan was as a person. This chapter of his life marked the beginning of an unbreakable bond with Ramanujan. Srinivasan, deeply troubled by the fact that Ramanujan's genius



was confined to elite academic circles, made it his mission to bring Ramanujan's life and work to the forefront of public consciousness. He came into correspondence with the widow of Srinivasa Ramanujan, Janaki Ammal, and Ramanujan's brother Tirunarayanan in 1954, and remained in touch, regaling himself with stories of who Ramanujan actually was.

Srinivasan's joy knew no bounds, when sometime in September 1962, the Government of India announced that it would be

releasing a stamp on 22nd December, 1962 commemorating the 75th Birth Anniversary of Srinivasa Ramanujan. A brilliant idea struck Srinivasan, one that would keep him occupied for years and ultimately become the crowning jewel of his life's work.

It was a thought that transcended the ordinary - he wanted to collect original letters, works and memorabilia of Srinivasa Ramanujan, and aimed to present Ramanujan, not just as a mathematical genius, but as a real, relatable human being, one who walked among us in flesh and blood. Srinivasan believed that by showing Ramanujan in this light, he could inspire students across the country, encouraging them to see that greatness is achievable by anyone with passion and valour. This way, he thought he could bring Ramanujan's legacy closer to the hearts of the younger generation.

Of the efforts that followed, Robert Kanigel, the author of the international best-seller "The Man Who Knew Infinity", which was later made into a major Hollywood film, writes thus:



On October 8, 1962, a group of men met at the three-hundred-year-old Mallikeswarar Temple, at the northern end of Linghi Chetti Street, in Madras's Georgetown district, whose streets Ramanujan had walked half a century before. Here, in the shadow of the temple's ornate gopuram, P. K. Srinivasan, a mathematics teacher at Muthialpet High School, brought his friends together to launch a project. He had first read about Ramanujan twenty years before. Ever since, he had tried to inspire students with his example. Then, eight years before, a friend had taken him to meet Janaki and Tirunarayanan, Ramanujan's surviving brother. Now, as the seventy-fifth anniversary of Ramanujan approached, he was determined to bring out a memorial book, filled

with letters and reminiscences, to honour him.

Recruiting the high school's alumni, or "old boys," to help him, he placed ads in local papers, interviewed people who had known Ramanujan, gathered letters. When he'd get some flicker of interest from an ad or contact, he'd immediately follow up. Often, he found himself just patiently sitting there, while someone rummaged around in an old trunk for some half-remembered letter. Sometimes, he'd bring in a stenographer, skilled in both English and Tamil, to record the conversations.

In Madras, around the time of the anniversary, a birthday celebration was held in his honour, and many of those who had been close to him or

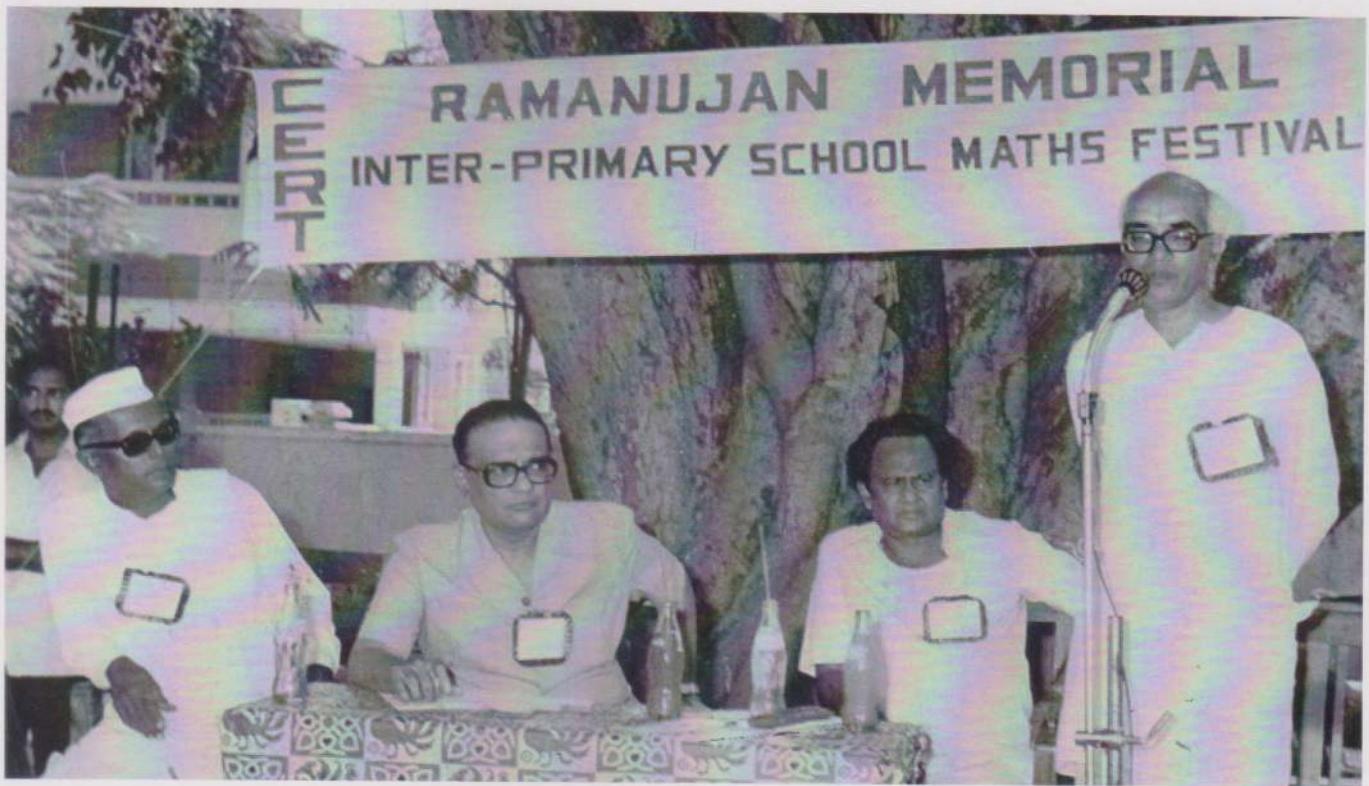


his family were in town. Srinivasan exploited the opportunity, stationing old boys at the entrance of the hall to solicit comments, correspondence, and reminiscences.

At another point, he visited Ramanujan's old house in Kumbakonam; Tirunarayanan had given him permission to look through the almirah, a sort of wardrobe, kept in a separate locked room of the house. In the presence of the tenant, Srinivasan unlocked the room. When he opened the almirah, which was covered with dust and cobwebs, cockroaches swarmed out. But in it, despite Tirunarayanan's assurance that any such find was unlikely, he found a letter Ramanujan had written his father from England.

Hearing of the treasure that Srinivasan had collected, the Madras University invited him to make a grand exhibition with all the originals of Ramanujan. Dr. A Lakshmanaswamy Mudaliar, the then Vice Chancellor of Madras University praised the efforts of Srinivasan and his students, at the special function held on Dec 22, 1962 for the release of the Commemorative Stamp by the Governor of Madras.

What Srinivasan did on the day of the release of this stamp was nothing short of sensational. He gathered a crowd of about 300 - comprising mostly of past and present students and teachers of Muthialpet High School, and went on a procession to the Mount Road Post Office, carrying placards of homage to Mathematicians of India, and purchased the first day covers. This event attracted the attention of the who's who, and Srinivasan suddenly found more



people forthcoming to provide leads of the whereabouts of more letters and writings of Ramanujan, as well as financial contributions to the efforts undertaken in this regard.

Srinivasan continued to travel to Kumbakonam, on weekends, knocking on doors, persuading relatives, and gathering more remnants of Ramanujan's life - letters, papers, and memories.

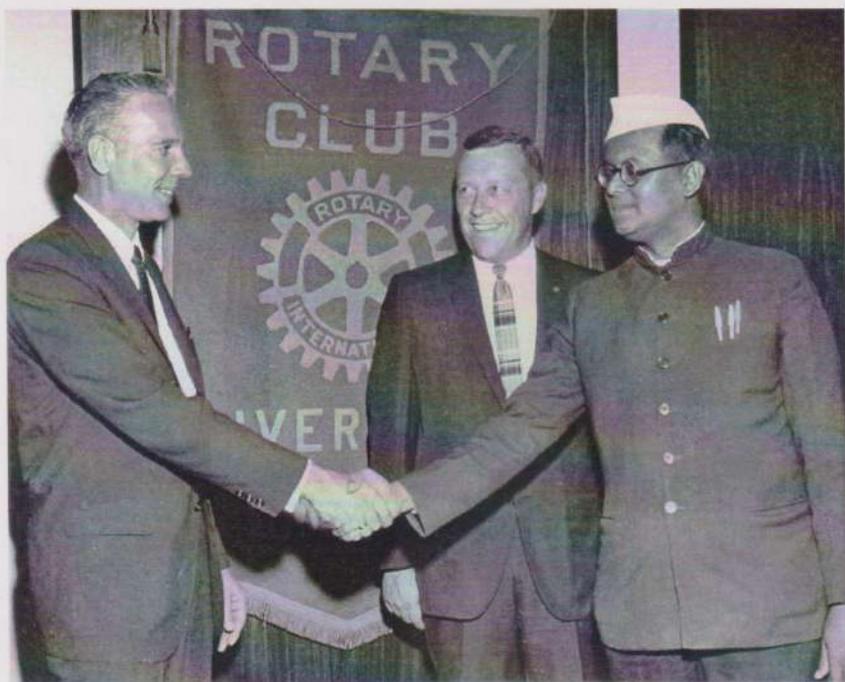
America Beckons

While the efforts to collect more material, and compile them into a book was still underway, an opportunity to work in the "Land of Opportunities" presented itself to Srinivasan. Upon hearing that the Fullbright Exchange Programme was conducting an

interview to recruit one teacher from India to serve as Math teacher in the United States of America, Srinivasan realised that this was a chance for him to experience teaching methods in a country like the USA and to also experiment with his ideas further.

Eager to seize this opportunity, Srinivasan arrived at the interview centre. The hall overflowed with several aspirants from across the country, all dressed in suit and tie, prim and perfect. Srinivasan did not see the need to disguise himself, and had arrived as usual, in his trademark *Jibba* and Gandhi cap. The others looked at him, amused by his mere presence in the hall, and sneered at him. How on earth did this smartless, mediaeval man think he stood even a remote chance





to get selected? Little did they know that it was Srinivasan who got selected hours later, after having wowed the interviewers with his mesmerising ways of teaching mathematics.

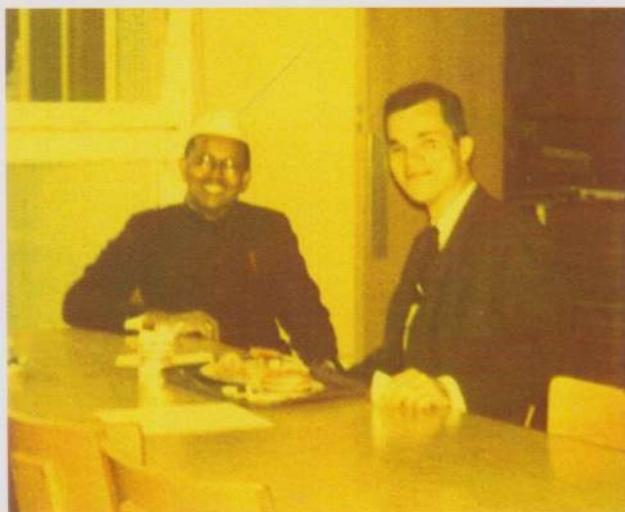
Keeping the winter weather of New York in mind, Srinivasan for the first time, donned a safari suit that didn't require a tie, and did not hesitate to retain his Gandhi cap. This was also the first time ever that Srinivasan bought footwear for himself. Yes - until then, he had walked only barefoot! Even as his stature had grown, Srinivasan had remained grounded, quite literally, until practicality in a foreign land required otherwise! It was a reflection of his steely commitment to Gandhian values.

Srinivasan was a man whose emotional resilience was remarkable. He was someone who remained stoic in the gravest of hours - even when his mother or father passed away, moments that would devastate most. Yet, there was one name that could move him

to tears: Mohandas Karamchand Gandhi!

The mere mention of Gandhi's name was enough to get Srinivasan choked up. To understand this, we need to understand the sublimity of the values that Gandhi held in Srinivasan's heart. Srinivasan represented everything that the Mahatma campaigned for - humility, service, and the belief that education and upliftment of the common people were the most profound paths to change.

Air tickets arrived, and Srinivasan, agog with excitement about the possibilities awaiting him in the new land, took his maiden voyage out of India. 1965-66 saw Srinivasan utilising every opportunity in the USA to learn, unlearn, explore and experiment. His charming ways, and refreshing approach to teaching Mathematics earned him several fans at the Liverpool Central School, where he taught. He was thrilled to see the reception he got to his efforts to popularise Mathematics, and was inspired by the



readiness the education system of the United States offered to imbibing new and evolving teaching methods.

After holding math expositions in several schools in the USA, Srinivasan was invited to speak at the 44th Annual Meeting of the National Council of Teachers that was held in New York City, where he presented Srinivasa Ramanujan as a

“Model Student” of Mathematics. Srinivasan was the only foreigner to have been invited to speak at the prestigious conference.

USA had fully welcomed Srinivasan, and was ready to celebrate his means, methods and maverick brilliance as a teacher. He was offered a permanent job, and the opportunity to bring his family to the USA as well! But

Srinivasan did the unthinkable. He decided that India needed him more than he or his family needed the USA.

Moreover, the Ramanujan books were still waiting to be made, remember?

Back to Motherland

Srinivasan’s family had, by 1967, grown quite big. Alamelu and him, had begotten ten children - five sons, and five daughters! The entire family, and Alamelu were hopeful (in their hearts, if not vocally) of the possibility of living in the USA. America shimmered like a not-so-distant dream, a land brimming with the promise of boundless prosperity and golden opportunities to every single person in the Srinivasan household. But they were all to meet the same fate as Kothandaramar!

Their hopes were dashed, as Srinivasan arrived back in India - the only prosperity he brought back being several cartons of books that offered a decade’s worth of reading, and a lovely, shimmering gold chain for his dearest Alamelu, that weighed 8 sovereigns approximately.

As soon as he was back, Srinivasan not only rejoined Muthialpet High School as Math teacher, but also got busy, giving final touches to the publications on Ramanujan. It had taken five years, for Srinivasan and his dedicated old boys, to collect a sizable amount of material. By 1968, Srinivasan completed the writing and personally oversaw type-setting of the two volumes he had produced on Srinivasa Ramanujan. The books were, finally, ready for print!





It was at this juncture that a new hurdle emerged - he ran out of money! The brief razzmatazz around Srinivasa Ramanujan that had cropped up in 1962, had also withered, and Srinivasan found no sources to fund the printing of the two volumes he had made ready. Enter, Alamelu.

Alamelu, who couldn't stand the sight of a crest-fallen Srinivasan, who fully understood the importance of her husband's mission, simply sold the 8-sovereign gold chain Srinivasan had gotten for her from the USA, and gave her overjoyed husband the money for printing. With this profound sacrifice, the biography was printed in two volumes.

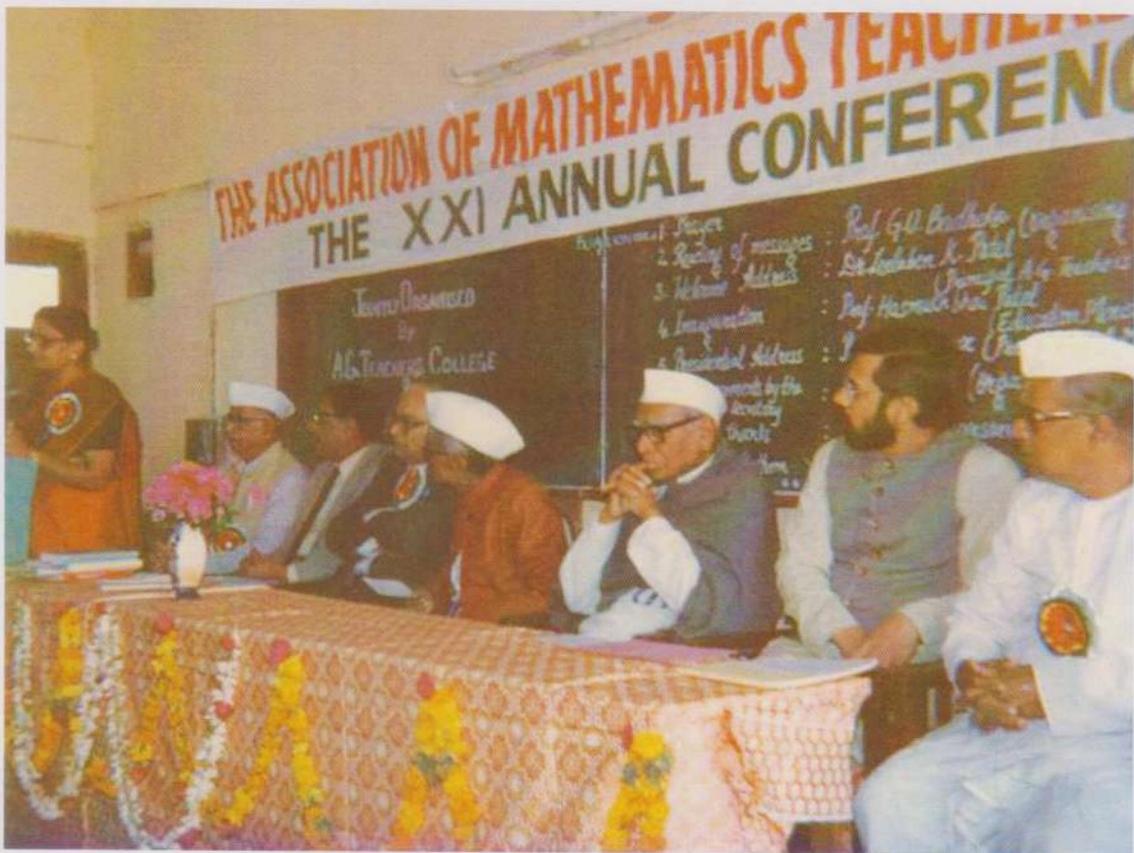
On the day of the books' release, Srinivasan stood at the sides, and watched with silent pride, like a mother bird looking at her chick's first flight, as the first Governor General of Independent India, and former Chief Minister of Tamil Nadu - the revered

statesman Chakravarthi Rajagopalachari released the volumes, and Janakiammal, Ramanujan's wife, received the first copies. This event marked Srinivasan as the first biographer of the math genius, Srinivasa Ramanujan.

The successful release of the volumes offered only ephemeral solace to Srinivasan. With thousands of copies printed, barely a hundred were sold. Stacks of unsold copies still remain in the almirahs of Srinivasan's family home, where a few maybe even wondering what it's worth would be - if it had remained a gold chain!

The story of Ramanujan, Srinivasan had worked so hard to share, was met with indifference, far from the enthusiasm he had hoped for. The outcome was indeed a mirror held to the society, which was devoid of intellectual hunger. However, Srinivasan trudged ahead. Undeterred, undaunted. He





always knew and acknowledged that he had undertaken a war not against any foe or adversary, but against a monolith system of education that protected inertia, rewarded mediocrity and disincentivized change. His foes were the designs of Macaulay, and his agents, who held the Indian education system slave to their broader goals of a subservient India.

This was also why the boy-wonder Srinivasa Ramanujan never failed to inspire Srinivasan to extreme ends. Srinivasan says the following to Robert Kanigel, as recorded by the latter in his book - "The British thought Indians were inferior, and Ramanujan showed otherwise. He boosted our morale." With time, Srinivasan indeed realised that the British had deeply implanted that belief even in Indian minds, and so, he persisted -

undeterred, undaunted.

Between teaching at Muthialpet High School, organising math expositions, participating in the operations of the Association of Mathematics Teachers of India (AMTI) that he co-founded, writing textbooks for NCERT and State Boards, penning articles in newspapers - he had little time for relaxing.

His father and mother died in 1971, and 1974, respectively. A complex family situation presented itself, and Srinivasan decided to give up ownership of 10, Jubilee Road, their familial home, in favour of his three sisters. For his own family, Srinivasan obtained a small 1-ground plot in Nanganallur, a sleepy suburb in South Madras, and the big family of Srinivasan moved into a rented accommodation nearby, awaiting funds to construct a home they could live in.

Africa Beckons

In 1975, another adventure arrived. This time it was Africa. The education department of Nigeria appointed Srinivasan to serve as a Senior Federal Education Officer there. Having seen a country like the USA keen to embrace change, and a country like India, that was struggling with the idea of change, Srinivasan was eager to see what the African milieu looked like. At the age of 51, after obtaining voluntary retirement as Headmaster of Muthialpet High School, Srinivasan, again leaving behind Alamelu and children in India, left for Nigeria.

There, Srinivasan worked tirelessly to transform the educational landscape. His role in Nigeria was to be a teacher's teacher, and to evolve standards in teaching Mathematics. Srinivasan realised that many teachers lacked

even basic understanding of mathematics, which made his task doubly challenging. Yet, his passion and innovative methods earned him the love and respect of the African community. They celebrated him as a man who proved that a 'Black child' was just as intelligent and capable as any other. But his success, like in India, caused detractors to squirm.

An Indian colleague, Kumar (name changed), felt threatened by Srinivasan's inclusive approach and often undermined his efforts. He would repeatedly belittle and question whether Srinivasan could truly effect change in the African society, which he viewed as unsalvageable. For a man who regularly exploited students for personal errands, Kumar couldn't comprehend Srinivasan's lofty vision of equality in education, especially in





a country like Nigeria. Srinivasan, however, remained unfazed - for him, the colour of one's skin didn't matter - all that mattered was the mind's potential to learn and grow.

As years rolled, Srinivasan sent money back to India, and Alamelu, and the elder children, oversaw the construction of their home at Nanganallur, which was to serve as an important destination for several mathematicians from across the globe who would arrive in India eager to rediscover the genius of Ramanujan.

His 7-year stint in Africa left an indelible mark, transforming the lives of the teachers and children he worked with. Being the keen observer of politics that he was, Srinivasan, sensing an impending military coup d'état, and civil unrest in Nigeria (which eventually happened in 1983), returned to India in 1982.

Back to Motherland Again

Free now, from belonging to a single institution, Srinivasan wanted to pursue three main objectives - to train more teachers, to exorcise Math phobia among students, and to set up a Museum for Ramanujan with all the original material he had collected through the sixties.

He began holding several workshops for teachers, and understood that many schools, especially those serving underprivileged communities, lacked resources.

So, he transformed everyday objects into powerful teaching tools under his "Low Cost, No Cost" approach. Soda bottle caps, toothpicks, tongue cleaners, and tamarind seeds became his instruments for devising innovative ways to teach complex concepts. His students would use these items to solve problems, visualise mathematical relationships, and break down difficult equations. These aids allowed children, even from resource-poor schools, to interact with math in a tangible and fun way, demystifying the subject.

His aim was to show that teaching, and particularly teaching math, didn't need expensive tools - it only required creativity on the part of the teacher, and child-like enthusiasm on the part of the learner. These methods became a hallmark of his workshops and inspired countless teachers across India. He held that 'there were no dull students, but only dulled students'.

In 1987, through AMTI, Srinivasan launched a project called "Operation Taking Ramanujan



to School" - and worked towards organising various events around Srinivasa Ramanujan's Birth Centenary. This was also a period when Srinivasan focussed on promoting interest in Mathematics through the path-breaking concepts of 'Math Expos' and 'Math Labs', which he was a pioneer at. His Math Expos were interactive events where students could engage with mathematics

through demonstrations and puzzles, and his Math Labs were classrooms equipped with materials that allowed mathematical concepts to come alive.

He travelled the lengths and breadths of India, conducting workshops, expositions, developing teaching aids, and sharing his techniques with teachers. He involved

himself in creating a repository of equivalent words in Indian languages for English Mathematical terms, focussing primarily on Tamil. He continued contributing several series of articles to major dailies, while also serving as the editor of "Junior Mathematician" published by AMTI.



"My work is done"

The sight of Ramanujan's original letters, which Srinivasan had painstakingly collected, still lying untouched and gathering dust in his home, was a constant source of heartache for him. These precious documents, meant to preserve the legacy of one of India's greatest minds, remained neglected.

Srinivasan's appeals to the State and Central governments in this regard, fell on deaf ears. For years, he knocked on doors, seeking support for the invaluable originals he had collected, but none opened - until, an unexpected visitor arrived in 1992, bearing a plate of small ice cream cups. Chandramogan introduced himself to Srinivasan, much to the latter's surprise, and rekindled their bond. He was eventually instrumental in connecting Srinivasan to the educationist ATB Bose, who offered space for the Ramanujan Museum in a small room in an education centre in Royapuram, that he was building.

Thrilled that his dreams of setting up the Ramanujan Museum was finally approaching fruition, Srinivasan worked with ATB Bose

night and day, designing the look and layout of the Museum, and its other features that would captivate the interest and curiosity of visitors.

The then-Editor of The Hindu, N Ravi, who was instrumental in providing a platform for Srinivasan's articles, supported the venture by producing large display boards containing engaging Mathematical presentations.

Finally, the D-day arrived for the inauguration of the Museum, which was to be graced by C Subramaniam, former Union Minister, and former Education Minister in the Kamaraj Cabinet, with whom Srinivasan had had



correspondences right from his Muthialpet days.

However, much to the bemusement of all who attended the inauguration that day, Srinivasan was nowhere to be found at the venue. His daughter Nirmala, later carried a message that Srinivasan was away in Varanasi holding an exposition, and that he felt that his work for setting up the Museum was “already done”.

Srinivasan, nevertheless, saw this day as more than just a personal victory. It was a triumph for the legacy of Ramanujan, one that would live on. Srinivasan found it poetic that a museum for Ramanujan, took shape in the fishing hamlet of Royapuram, symbolising his own belief that the brilliance of Ramanujan belonged to everyone, especially those from underprivileged backgrounds.

The Unfinished Rebellion

Always hidden from view behind a pile of books, and papers, for the next eight years, Srinivasan worked, cooked, lived, and slept (for not more than 3-4 hours a day) out of a cramped 10x10 room that ATB Bose provided him on the terrace of the same complex that housed the Ramanujan museum in Royapuram. Well beyond 70 years of age now, Srinivasan still showed no signs of tiring. He would come home to Nanganallur during the weekends, mainly to collect his postcards and letters, and to get his clothes washed, and pressed.

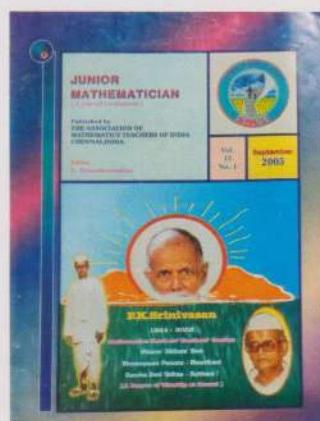
The demure building in Royapuram became a Mecca of sorts for several mathematicians



and math lovers from across the globe. Srinivasan took immense pleasure in hosting several of them, who would either visit him in Royapuram, or his house in Nanganallur.

In 1999, to the amusement of his family, friends and peers, 75-year old Srinivasan, finally traded his white *Kadar Jibba*... to a tee, that he proudly wore wherever he went, including to a TV show that he was a part of! And this was - not a Polo or a Lee - but a green “Ramanujan” T-shirt that Bruce Bernd, an American mathematician and fellow Ramanujan-fan, had sent him! It had the image of Ramanujan on the front, and a date magic square of Ramanujan’s birthday on the back!

By now, apart from close to a hundred articles, Srinivasan had already published



19 books in English, and 11 books in Tamil, on interesting concepts in Math, and Math Education. Through his workshops, he continued to campaign relentlessly with pathbreaking experiments, proving that 8-month olds could see Patterns, 8-year olds could learn Algebra, and senior citizens could derive fun from Math.

For someone who had the habit of drinking several bottles of fizzy soft drinks everyday for decades, Srinivasan caught a virulent lung infection, quite late - sometime in May 2005, to be precise. He protested on the way to the hospital saying he had "no time" as he was half-way through a book called "Math Fun for Senior Citizens" (which was published posthumously), and irritably listed, to his daughter, the titles of 25 more books he intended to write.

After battling with the lung infection, and several failed attempts in teaching date magic squares to nurses at Porur Ramachandra Hospital, Srinivasan breathed his last on 20th, June 2005, leaving behind Alamelu, their ten children, grand-children, thousands and thousands of inspired teachers and awakened students around the world, and most of all, an unfinished rebellion.

"A country that has learnt to cherish, keep alive, and draw inspiration from the memory of its creative geniuses can always face its future with confidence and hope."
- he wrote in his preface to the two volumes on Srinivasa Ramanujan that he had brought out in 1968.

It remains to be seen if the Universe indeed took Srinivasan and his yogic life of rebellion seriously.

A Centenary Tribute

Dr. B. Ravikumar

Professor of Computer Science, California State University

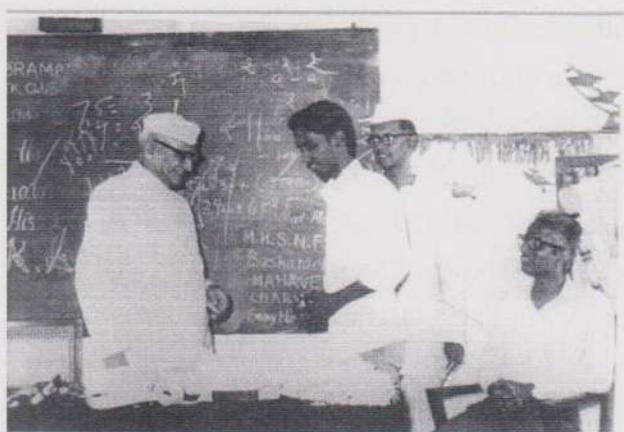
This brief write-up is about my teacher P.K. Srinivasan, whose centenary memorial is being organized by the beloved members of his family, and supported enthusiastically by his disciples and admirers. I have organized this tribute into the following sections. I had to omit a number of anecdotes to keep this article to a reasonable length.

Number Friends Society

During the start of the academic year 1970-71, there was buzz among the students of the Muthialpet High School (MHS) a teacher named PKS who had just returned from U.S.A. It was just a week later that a student from the tenth grade (I was in the eighth grade then) asked me to come and meet PKS. It was around 4 PM just after the classes had finished. When I walked into a class room, there were several students from various grades with whom PKS was energetically describing a plan for the upcoming inauguration of the Math club. By the end of that evening, I was recruited

to be one of the speakers to present in an upcoming symposium.

Math clubs were virtually unknown in those years even in the west. PKS had established the Math club not only in MHS, but in many schools in the city. At MHS, the club was vibrant throughout the year. He set the tone for its vigor with a rather unusual way to inaugurate. He will choose a topic in Mathematics which is not part of the curriculum and select students from different grades to present the basic theory behind the chosen topic in progressive stages. In the current year, the theme was about number system – decimal, binary as well as an alternative number system using digits 5 to -5 (5 to). He used bar to represent negative numbers. He developed the theory behind all the basic arithmetic operations and provided justification. The alternative number system makes the justifications and manipulations easier for even a grade six student to understand.



His way to train the students for the symposium was interesting. We will meet with PKS almost on all the evenings for about two to three hours, right after the classes concluded. In the beginning, he will give a short lecture and ask a number of questions. The students will talk to each other and try to answer the questions. Only after all the assigned speakers had developed a basic understanding that he will assign specific topics for each student to present. Each speaker will be asked to write up the problem and solution they will be presenting. Senior students will be given the role of listening to junior students and correct any errors. After several weeks of such meetings, the rehearsals for the talk will take place. PKS will be there every day and make sure the presentations are free of error and coherent. The entire learning process was such that each presenter understood not only the topic or the problem he was presenting, but also how it relates to the overall theme.

An evening of celebration will take place on the day of inauguration during which a Mathematician from a prominent institution (which Madras was abound with) will be the chief guest. But the focus of attention was the presentations by the students. During



the several years I had the opportunity to witness the club opening, the themes of the symposium ranged over Number Systems and Group Theory, Euclidean vs. non-Euclidean Geometry, Cantor's theory of Infinities, Calculus and Measure Theory etc. Many of these topics were not even part of B.Sc. Mathematics curriculum.

The learning one undergoes by participation in such a setting can be long lasting. Some of the unique aspects of our interaction with PKS were the total lack of didactic sermonizing from PKS. He almost encouraged students to free themselves from the obsequious behavior. A consequence of such *laissez-faire* attitude on his part was he did not have to waste his time and energy to discipline the students. The setting was conducive for the student to self-regulate their behavior.

After the first year, I did not get an opportunity to be a speaker. I was assigned the role of guiding the other presenters. This was PKS' way to recruit new students and also his confidence in letting students evolve into a suitable role as they grow in their learning process. During the year when the theme



was about Euclidean and non-Euclidean Geometry, PKS made the presentation into a play. A student playing Euclid appeared in the costume of ancient Greeks, and enacted his presentation. During the weeks preceding this symposium, the discussions on angle trisection and parallel postulate was a rage among the students. Some students spent hours on end trying to come up with angle trisection using ruler and compass even after PKS made it clear that this was not possible. I have rarely witnessed such obsession among students on Math problems. It was all thanks to PKS who infected us with the enthusiasm that refused to die down in spite of the onslaught of the academic pressures we were facing.

After the opening of the club, the rest of the activities followed swiftly. During the years I

was at the school, we witnessed many Math Exhibitions (he later changed the name to Exposition), Math competitions, visits to other clubs and institutions (such as IIT, TITI etc.) PKS also initiated a program called Advanced Learners program. The goal was to learn systematically a topic in Mathematics outside the school curriculum that will be supervised by him. The student can use the class time to do the learning with the permission of their Math teacher, after completing the regular curriculum. I was actually able to learn basic Matrix Theory during my tenth grade as part of the advanced learners program. I have never seen any school, in India or in US where such a program exists. What amazes me is the audacity with which he was able to launch such a program and the real administrative skill to implement it. In some sense, more





than the unbounded passion PKS had for Mathematics, his executive skill was what made him the towering educator he became.

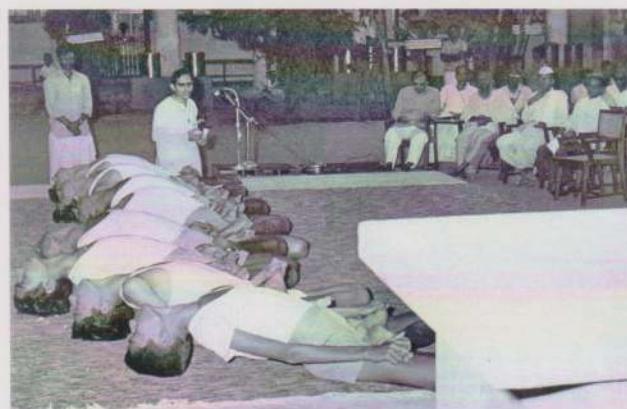
2. Interschool Math Clubs Meet

In December 1973, just before the schools reopened after the Christmas holidays, around twenty schools from various parts of Madras participated in the first Interschool Math Clubs meet. Each school had two participants. This was a completely novel event with no precedence anywhere in the world – at least at the high school level. The event had many components. First it was meant to expose some college level Mathematics to participants. Two professors Geetha and Devapakiyam from Madras University (Ramanujan Institute) were asked to give a three-hour lecture per day for three days. The topics were Point set topology, Linear Algebra and Modern Analysis. These topics were totally unfamiliar to the participants so the professors had to be meticulous in balancing between the pace and coverage. Following the lecture, there was a test on the topics covered. In the afternoon, we had a different event on each day. On the first day, the students were divided into teams.



For each team, an open-ended problem was given. The goal is to make progress on the problem for around three hours and on the following afternoon, some teams that have made significant progress will be asked to present it to all the students. My team was presented with the problem of finding a formula for the area of a polygonal with vertices on a lattice grid in terms of the number of corner points, points of the boundary and the number of interior points. Such a formula is called Pick's theorem and I was able to find the formula after a lot of experimentation. On the third day, there was an event called Mathematical Doodling organized by PKS himself. I recall one problem from this session: Given a complicated drawing of a simple closed curve, and a point, how to determine if this point is inside or outside the curve. We were given a series of such





problems and had fun discussing and sharing ideas with each other. Although this was a competitive event in which three prizes were awarded to the best scorers on the tests, it was also a setting in which there was a lot of cooperative problem solving and discussion of Mathematics among students. It was a surprise to witness students enthusiastically discussing problems and socializing in the back drop of Mathematics. In fact, I am still in contact with four of the participants from this event. I am very glad that I got the opportunity for such a unique experience that also gave me ideas on how to organize such events in future.

Interschool Math clubs meet continued for a few years. I was a guest participant in the following year's event. Although I don't remember all the details, I do recall that

K.R.Parthasarathy, a distinguished graph theory researcher from I.I.T. Madras was one of the lecturers. This event was also noted for K. K. Shah, the Governer of Tamil Nadu at that time, inaugurating it. The following year, which I also had the luck to participate in, had the theme of Algorithms, a term that has now become a household name, but was totally arcane at that time. If I recall, Math Clubs Meet continued unabated until P.K.S. left the country to take up a position in Nigeria.

This was just one of many Math competitions that was initiated by P.K.S. Another Math contest that he initiated, probably in 1960s was the Interschool Math Contest. This was a precursor to the Olympiad which is currently conducted under the auspices of AMTI (Association of Mathematics Teachers

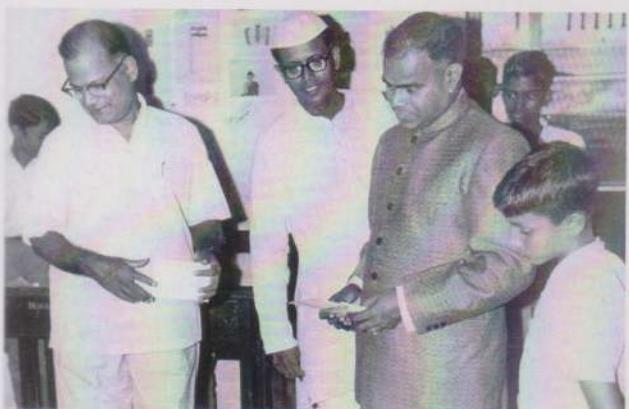
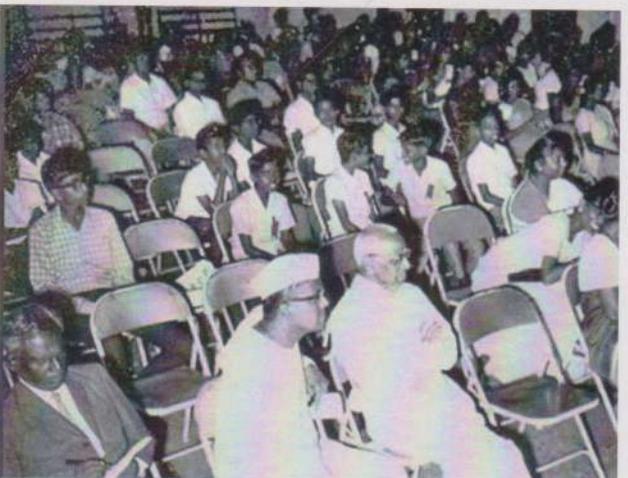
of India). This contest was organized by P.K.S completely on his own initiative. It was conducted state-wide. The amount of effort involved in organizing it was quite significant ranging from making up the test all the way to offering prizes for the best performers, but he was carrying it out year after year.

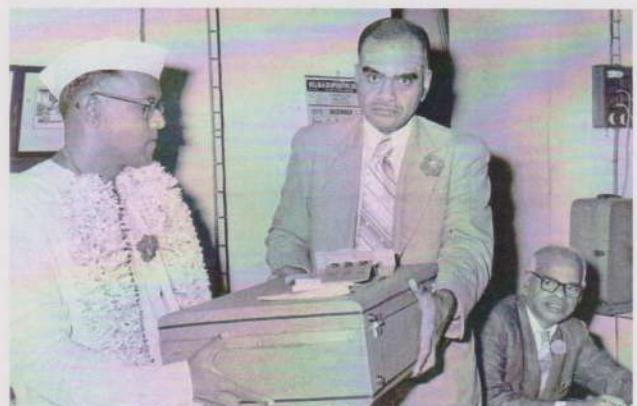
Another Mathematics contest initiated by P.K.S was Interschool Math Oratorical Contest. In this contest, a number of topics were sent out to participating schools. Each school would send three students. The students will prepare a talk on one of the selected topics and were graded on how comprehensively (and correctly) the topic was presented and how well the student answered questions at the end. This was another event that generated a lot of interest among various clubs around the city. P.K.S. would often remark that most of the Math lectures were stodgy and barely comprehensible. This competition was probably meant to make talking about and listening to Mathematics a little less of drudge. I witnessed at least three such contests, having participated in two of them. They took place in Bentinck School, Teachers College and Vidyodaya High School. The students had a chance to listen

to other talks as well so I recall the wide range of topics he had included. Needless to say, the amount of effort and meticulousness of planning to make such events successful is beyond belief and he was scoring success after success in conducting them.

3. Teachers' day and Children's day

Besides the chock-full of mathematical activities, P.K.S. conducted programs on teachers' day and children's day involving the students. His way to celebrate Teachers' day was to let students be the teachers for a full day. In our school, we had a club called School Honors Society that was started by none other than P.K.S. Its members were those who were rank holders or those who scored the highest marks in a subject. The





members of this society were the teachers on that day. A small group of students who were ardent followers of P.K.S. would help him to create a schedule of who will teach which section. This required a lot of effort and P.K.S. had come up with a system to make this schedule. This schedule will be filled out on a paper with the name of the student and the teacher and will be handed to the student. The student will contact the teacher and instructions on what topic to teach. On the day of the event, the teacher will sit on the back bench while the student will conduct the class. The teacher will complete a review and hand out the sheet back to the student at the end of the class.

At the end of the day, all the student-teachers will assemble in a large lecture room and P.K.S. will lead a discussion. He will collect

the feed-back from the students. Then, ask a few students to come forward and share their experience. During some years, P.K.S. invited a reporter from a newspaper to cover the story of student-teachers. P.K.S. will take the reporter to some sections to observe. The following day, the story appeared as a column in the newspaper.

On Children's day, P.K.S. organized an exhibition in which the history and geography of a country or a continent would be explored. The first time I participated in this exhibition, it was called *Bharatham Parpom*. A large room (The Library Hall) was divided into various booths in the shape of India, and each booth has charts, photos and other illustrations focusing on a state. The students took great interest and pride in collecting and displaying materials with a



lot of support from P.K.S. and a few teachers he recruited for help. Another year, the theme was Europe. This time, P.K.S. sent the students to consulates and missions of different countries located in Madras to get materials. Some missions also sent short films to be screened. The exhibition took place during a weekend, but I recall seeing a large number of students coming to see the exhibition and it was probably the best lesson on History and Geography they ever had.

These are only a small sample of events P.K.S. organized over the years. These also reveal the wholistic view of education that he wanted to impart to students and that his own interests transcended Mathematics.

4. Books by P.K.S.

One can write an entire book reviewing the books by P.K.S. His most important

contribution is the widely known two volume book *Ramanujan Letters and Reminiscences* (Vol. 1) and *Ramanujan: An inspiration* (Vol. 2). The frontispiece of Vol. 1 has a sketch of the boy Ramanujan playing Aadu-Puli with his mother and that of Vol. 2 has the portraits of Jacobi, Ramanujan and Euler. This two-volume book can be found in the Math libraries of several universities in the US. I hope that a digital edition (in kindle and/or google book format) of this book will be brought out as it deserves a much wider attention than it has hitherto received.

Volume 1 contains a photocopy (as well as a printed text) of many letters and correspondences to and from Ramanujan. Some of them have found a permanent place in the history of Mathematics and have been widely quoted in numerous biographies. These letters bust several myths about Ramanujan – for example, that he was aloof

and had limited skill in English etc. The original copies of these letters are now in Ramanujan Museum at Royapuram, Chennai.

In addition to letters, Vol. 1 contains interviews and articles by persons who had directly interacted with Ramanujan. Each article contains interesting anecdotes in their lives as it relates to Ramanujan. But many articles also convey vividly the life in Tamil Nadu during the early part of twentieth century. For those who want to get a glimpse of the life in those times, this book is a more fascinating reading than any fictional work from that period. There is also a terse piece by a person named R. Srinivasan who addresses the mystic make-up of Ramanujan. In this article, we read the quote from Ramanujan that “an equation has no meaning for me unless it expresses a thought of God”. This statement has been widely quoted and it is surprising to see its original source going back to this volume. I will mention just one intriguing result from a letter that Ramanujan writes to a friend Subramanian: in this letter, Ramanujan constructs a real-valued function $F(x)$ of a real variable that is well-defined for irrational values of x , and undefined for rational values of x . As any rational number is approached from right, the limit exists, but it does not exist when it is approached from left. This function (or similar ones) should be studied further and somewhat surprisingly, I have not seen such a study so far, although virtually every piece of Ramanujan’s work has been annotated, documented and generalized. This volume concludes with a chronology of the life of

Ramanujan and contains many interesting nuggets of facts such as the names of the streets and durations of Ramanujan’s stay at various parts of Madras. We come to know that Binny and Co purchased the ticket for passage to England at the cost of Rs. 440 etc. The plethora of information collected in this volume is mind-blowing and certainly unrivaled in any Indian biography of a scientist.

Volume two is technical. It begins with an article by P.K.S. (with no attributed author name) that presents a number of entries from Ramanujan’s Note Books. Most of these were compiled by him as a middle or high-school student. But there are several profound results among these jottings. There are articles from school students to research scholars going all the way to leading Indian Mathematicians at that time such as G. N. Watson, S.S. Pillai and Hans Raj Gupta.

Because of space constraints, we will limit our discussion to only one other book (actually a three volume book) by P.K.S. He brought out three volumes of small books during Ramanujan’s centenary year of 1987 titled *An introduction to Creativity of Ramanujan*. The first volume was a guide to Mathematics Teachers in Primary Schools. This volume contains five sections each of which begins with an entry from Ramanujan’s Note Book. Then it develops the idea behind the entry with examples and illustrations. Finally it concludes with questions for further exploration. This volume ends with Ramanujan’s construction of three by three magic squares. Volumes two and three follow

a similar format. Volume two has ten entries. In this volume, challenge activities assigned to the students are more open-ended and are called projects. The topics include highly composite numbers, sums and differences of cubes, four by four magic squares. The third volume is intended for high-school students. This volume has eight sections. In this volume, there are chapters on Diophantine equations, conditional identities etc. There are projects and questions for students to pursue. P.K.S. was interested in bringing out a fourth volume for college students. But as far as I know, it did not materialize. But he was pleased when he saw Berndt's book Number theory in the spirit of Ramanujan – and could be considered as a fourth volume of this series, although significantly more challenging. P.K.S. has written scores of books all of which intended for young students to develop a passion for Mathematics. He never

wrote a text book although many leading publishers urged him to do so and offered him attractive financial rewards. But he was adamant about not accepting such offers. In addition to the published books, I think he has also left many unpublished manuscripts. For example, he shared with me a volume on Kolam (Rangoli) based on a workshop he conducted at the Ramanujan Museum in early 2000's. I am sure there are numerous such volumes yet to be compiled into a book form. The centenary year may propel his supporters to identify such manuscripts and publish them.

5 Math Exhibitions (Expositions)

P.K.S. was widely known and admired as the organizer of Math exhibitions or expositions. During the four years I was closely associated with the Number Friends' Society, P.K.S.



organized what I think is the most important exposition that he called Mathematician: An Ace Model Builder. I have written about this in a separate section. In this section, I will mention the other exhibitions that I participated in during those years. (I should mention that I continued my involvement in the expositions organized by P.K.S. even after I left the school.)

The first one I recall was a Ramanujan Exhibition that took place during a two-day weekend in 1971 or 72. There were exhibits covering five or six rooms. This was my first exposure to the Mathematics of Ramanujan. The rooms were named after persons who played an important role in Ramanujan's life – Hardy, Narayana Iyer, Rama Chandra Rao etc. A number of elementary results from Ramanujan's note books were displayed

as posters. I learnt for the first time about Highly Composite Numbers, Euler's Totient function, partitions, various conditional identities, Ramanujan's work on magic squares etc. At the urging of P.K.S. I went through most of the posters and tried to understand the mathematical content. Of course, he had chosen only the materials that were suitable for high-school Math students, but he was asking us explore the topics deeper by creating new examples etc. At the entrance to the exhibits, one alumnus who was adept at creating birthday magic square, would construct one for some of the visitors as a gift. (Birthday magic square has the birth date in the top row of a 4 by 4 grid, and twelve other distinct numbers such that all the rows, columns and diagonals add to the same value.) On the evening, there was a play about Ramanujan – scripted



and directed by P.K.S. and enacted by the students. Years later, I had a chance to see the play Partition by Ira Hauptman about Ramanujan and Hardy, I was reminded of the play I witnessed in the school.

Another exhibition I participated in was organized by P.K.S. in Stella Maris College. It was an exhibition involving several schools, but he played a pivotal role in choosing the content and organization of the material. I also remember an Engineer friend of P.K.S. who he invited to display a mechanical calculator that he had designed. P.K.S. described how it related to Abacus and Pascal's calculator. He also related it to Napier's work, but I don't remember any other detail regarding this device. But P.K.S.'s enthusiasm was palpable and the recognition received for it for mainly due to the affirmation given by P.K.S.

The last exhibition I will mention is an exhibition on Geometry he conducted at the school premises. The theme of this exhibition was polyhedra. Three dimensional geometry is a topic that is deeply buried inside Math-major curriculum at the college level. But even as high school students, we learned fundamental theorems in 3D geometry, including Euler's formula relating the number of vertices, faces and edges. He also led us through the proof of the existence of only

five platonic solids. A distinct memory from this exposition is the very clever contraption he developed to create polyhedra by using straw and pipe-cleaners. The pipe-cleaner is a pliable stick that can be cut to any length by hand. Using them as edges and the straw as a link to connect edges, one can easily create polyhedral shapes very easily. This simple mechanism allowed the volunteers to illustrate Euler's theorem by creating polyhedral with various numbers of edges, vertices and faces.

6. Some Concluding Remarks

P.K.S. had a restless mind. Especially, when it came to conveying his passion for life to young children, he did not hold back anything. He had a high expectation from the students and set lofty goals for them. He also trusted in the creativity and basic love for knowledge that he thought was inherent in every young learner. As years passed, his target seemed to become younger and younger. Many of his writings in the last years were for Primary School children. His enthusiasm for learning and transmitting it to others remained all through his life. I feel extremely fortunate to have had his influence and guidance.

Legendary Guru

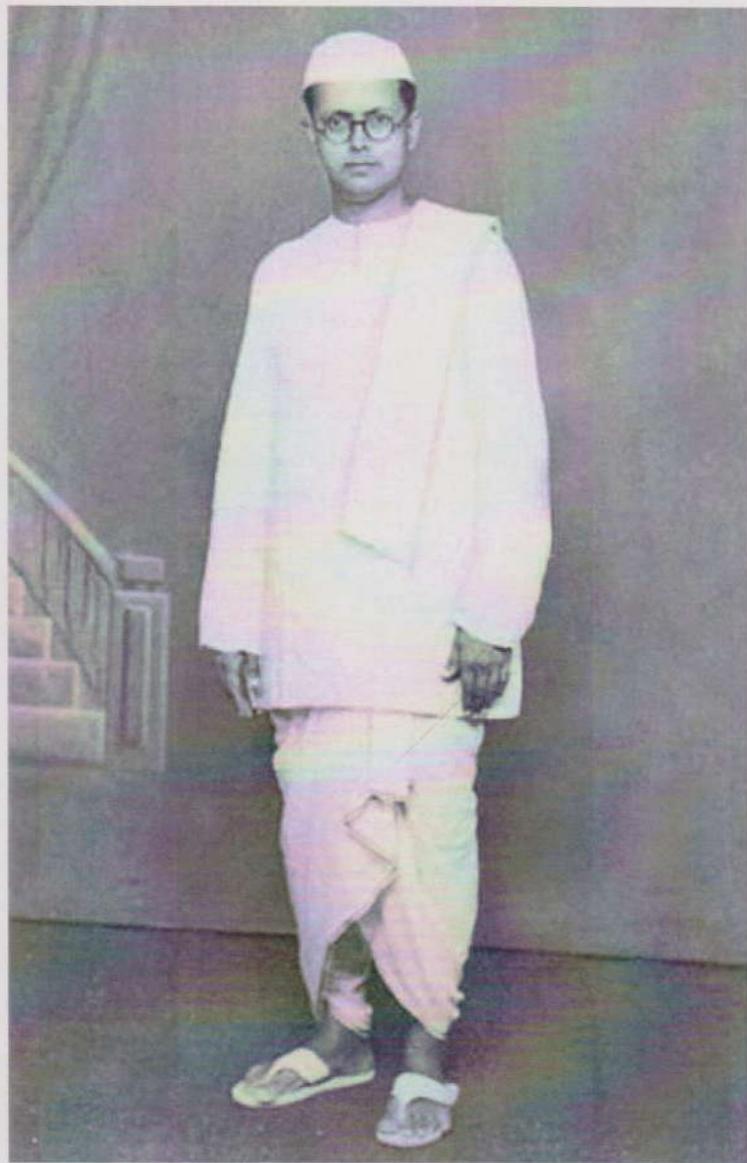
Shri. R G Chandramogan

Chairman, Hatsun Agro Products Ltd., Chennai

I was from a rural back ground ignorant in English to speak, write or read. I joined English medium of engineering section in Muthialpet high school in 1964. Joined 10th standard.

I remember freshly the first day of my class, when P. K. Srinivasan fondly known as PKS entered the class. He came with a neat white khadi dress & cap. His looks were similar to Vivekananda. Started with an out of syllabus question straight away. Question was what is the difference between Storm, Tempest, Hurricane, & Tornado. We were completely blown away flabbergasted. Nobody answered. He started the first briefing.

He asserted, saying he will teach English to write, read, & speak. Will not give a summary to be memorized & vomited to just pass the exam. Those days it was the accepted norms with all other classes. Insisted us to write our own summary. He said he isn't leading a blind man





by holding his hand to cross the road. He can only show, how to cross the road with common sense seeing the traffic. For rest of life blind folded crossing is not needed.

Further mentioned, if you do a short cut of getting the summary from your next class friend in the same subject & write to pass the exam, you are cheating yourselves. I am available to teach the language where you can form your own sentence wherever it's needed. He taught, coached, corrected it whatever the blunders we wrote. Trial & error was graciously accepted. Time & again correction was done briefing the reason. Never have I seen him joking sarcastically about a student for his weakness in English. Only positive radiation & encouragement all along. Trial & error to improve the language was welcome.

Equally I remember the last day of his class. I who was ignorant at the beginning in English has grown to speak, write, &

read comfortably. Added to that he added tit bits in the class the whole year. Fanatical obsession is needed to attain the desired result. Focus with confidence is the recipe for success. He taught do's & Don'ts of life. Very few followed his advice. Two of us in class followed his advice completely & we were the first & second in English next year in the public exam. He not only educated but made us knowledgeable initiating us to get further wisdom with our own life experiences. Both of us today became leaders of their own profession.

Equally I remember his statement on the last day of the class before exam. "I taught you to become the leaders of the society in whatever profession you choose in life. In case if we happen to meet 2 decades later from now on, remember one thing. If you happen to be a leader in your chosen profession introduce your self & speak to me. In case if you happen to be a peon, clerk, or a steno pass me without wishing. If you

still do so I will loose my night sleep thinking how have I wasted my time in developing poor personalities”

It had a profound impact on my life as his student.

Later in 1986 we became the market leader of Tamilnad with our brand in Arun ice creams. 21 years later I went to meet him. Introduced myself & he was happy & our association continued till his demise in 2005. Even today I know every family member of him. Any way I wasn't fortunate to study mathematics under him.

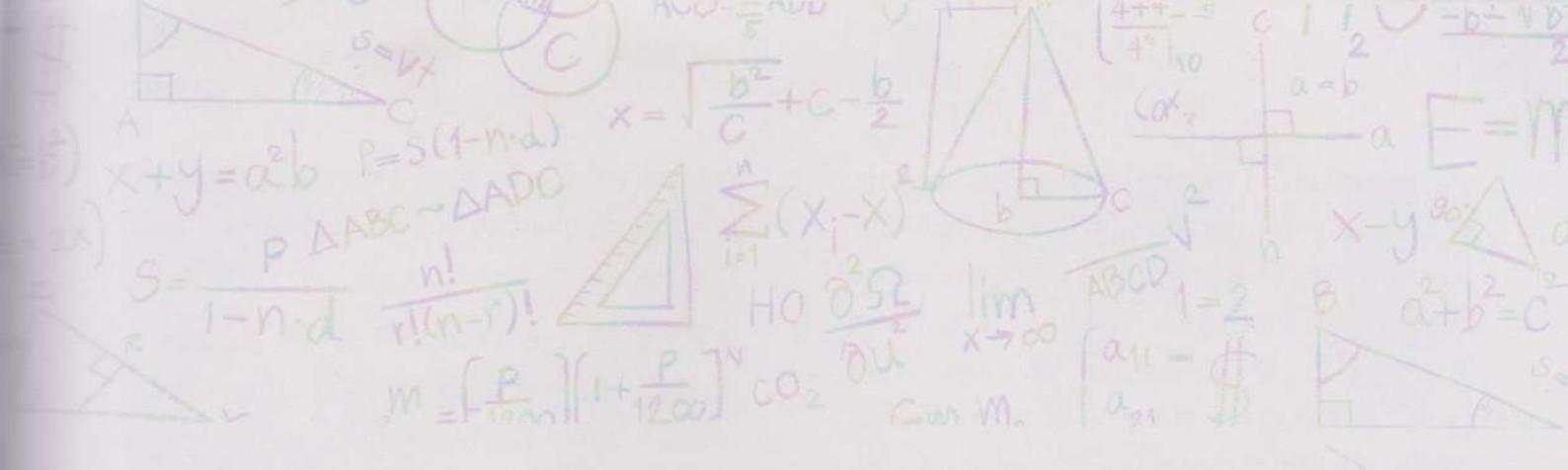
But I learnt the language, confidence & clear direction for the future.

He is responsible for my today's growth. My journey started with a capital of 13000 Rs in 1970 & today we are the largest Pvt dairy in the country with brand names, Arun ice creams, Arokya milk, Hatsun milk products, & Ibaco ice creams clocking a revenue of more than 9000 crores. Hatsun agro company I promoted, today directly & indirectly employ 53000 people which is 1/10000 of the working population of India.

Later introduced my friend Mr. Bose through whom he established Ramanujam museum to spread his great work on mathematics.

His legacy lives beyond his life. We submit our respects on the eve of the centenary year of his birth.

As Valluvar said he maintained a stance
if you are born be famous or it's not worth being born.



Reflections on the Life and Legacy of P.K. Srinivasan

Shri. N. Ravi

Director Kasturi & Sons Ltd. (of The Hindu Group)

My first encounter with Mr. P.K. Srinivasan several decades ago, when I recognized him not merely as a dedicated

math teacher but as a true missionary for mathematics.



As a journalist, I discovered in him a man on a mission—not just to educate students but to transform the perception of mathematics in the broader public. His goal was clear: to eradicate the pervasive fear associated with the subject, turning what many saw as an intimidating challenge into an enjoyable and fulfilling pursuit. This was his heartfelt mission, and it is in this capacity that I came to know him.

Srinivasan's contributions transcended the classroom; he began to share his insights through articles in *The Hindu*, particularly in the Sunday magazine. These pieces focused on how to make mathematics fun, filled with engaging puzzles and intriguing number patterns. He sought to demystify the subject and present it as a delightful challenge for children. His approach was not

only about teaching; it was about sparking joy and fascination in the minds of young learners.

On a personal level, I had the immense pleasure of watching his dedication extend into my family. Srinivasan took a keen interest in imparting his love for mathematics to my daughter, spending numerous Sundays with her. These sessions were not formal classes; instead, they were lively discussions filled with games, puzzles, and the magic of number patterns. He sparked her interest in mathematics, making it feel like an adventure rather than an obligation.

His missionary zeal in approaching mathematics education was palpable. He wanted society to view teachers and mathematicians as heroes—champions of





knowledge rather than mere practitioners of an esoteric discipline. He was among the first to recognize the heroism of Ramanujan, meticulously compiling volumes of his letters and the reminiscences of those who knew him. This work not only honoured Ramanujan's legacy but also provided a vital resource for future mathematicians and historians.

Srinivasan often lamented the neglect faced by teachers, despite their substantial responsibilities in shaping the nation's future. He advocated for elevated societal recognition of their contributions, emphasizing that educators deserve the same celebration as other professions held in high regard, such as farmers and soldiers. "Jai Jawan! Jai Kisan!" remains a popular cry, but Srinivasan believed it should be accompanied by a hearty "Jai Adhyapak!" for teachers.

His learner-friendly approach inspired many, including myself, to cultivate a mathematical mindset. He brought together unlikely individuals into the field of mathematics, persuading people like my former law professor,

Mr. Dhandayuthapani, to engage deeply with the subject. Srinivasan had this uncanny



ability to attract individuals—regardless of their backgrounds or prior interests—into the world of mathematics through his infectious enthusiasm and genuine love for the subject.

Srinivasan believed in the power of creativity and comprehension over rote learning. He aimed to alleviate the dread of mathematics by teaching students to understand the "why" behind formulas and methods, rather than merely dictating calculations. His approach to mathematics was about uncovering patterns and engaging students with concepts like magic squares and number games, making the subject accessible and enjoyable at all levels.

His personal connection with mathematics went beyond its academic study; it was a heartfelt mission to curate a future generation of math enthusiasts who viewed math not as an obstacle but as an integral and joyful part of their lives.

Among the more extraordinary experiences of his life was the connection to Ramanujan. My great-grandfather, Shri Kasturirangam, met Ramanujan while visiting the UK, where they shared conversations that bridged



their cultural and mathematical worlds. This remarkable interaction highlighted Ramanujan's growing fame and solidified his legacy in the discourse of mathematics—a narrative that P.K. Srinivasan would later amplify through his work.

Despite growing up in a traditional household, Srinivasan was a man of the world—his dress and demeanour may have reflected elements of orthodoxy, but his spirit was cosmopolitan. He never allowed his personal beliefs to cloud his mission; his dedication to mathematics and education was unwavering. He believed in reaching out to all communities, including those marginalized, such as the Narikuravas, or gypsy students, to ensure that mathematics education was inclusive and accessible.

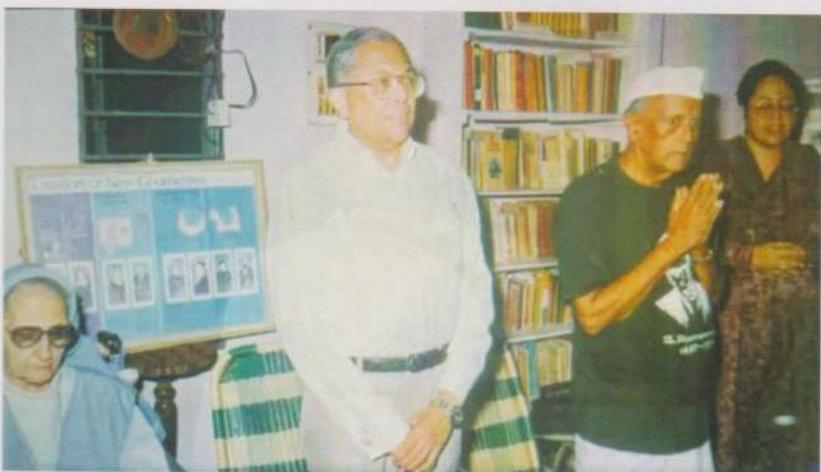
The culmination of his efforts in mathematics education was the establishment of the Ramanujan Museum and Math Education Centre. This was a vision he held dear for years, and when the museum finally

materialized, he was filled with joy and fervor. The museum became a place of inspiration and learning, showcasing the beauty and relevance of mathematics.

Through *The Hindu*, we supported his vision—creating large charts and educational materials that would communicate complex mathematical ideas simply and effectively. Srinivasan's belief in the power of visual aids led to the creation of engaging and elegant exhibits that inspired countless visitors.

Even as he faced the challenges of his mission, Srinivasan worked diligently to





elevate the role of mathematics in society. He travelled the world, engaging with various communities.

P.K. Srinivasan was acutely aware of the socio-political landscape surrounding him, particularly concerning the realm of education. He held strong convictions regarding the insufficient attention that politicians often devote to education and the future of children. His advocacy was rooted in the belief that educational issues should be prominent in political discourse. Despite his focus on educational policy, he remained committed to his primary passion: the promotion of mathematics.

Srinivasan was particularly concerned about the treatment of teachers within society. He criticized politicians for their inadequate handling of educational matters, emphasizing that they often overlooked the importance of prioritizing education, training, and the welfare of teachers. He believed that science and mathematics education should serve as the cornerstone of a robust educational system.

Rather than simply critique the political framework, Srinivasan sought to connect his mission to it. He understood that engaging politically could serve as an effective means to advance the cause of science and mathematics education. He recognized that the challenges facing education were interwoven with the political landscape, necessitating a proactive approach to influence policy and public perception.

Srinivasan's perspective was not one of disdain towards politicians or the political class; instead, he viewed them as often falling short of their responsibilities. He advocated for a vision where education, particularly in mathematics and science, received the recognition and prioritization it deserved.

The Legacy of P.K. Srinivasan in pursuit of Ramanujan

Prof. Bruce C Berndt

Distinguished Mathematician, University of Illinois Urbana-Champaign

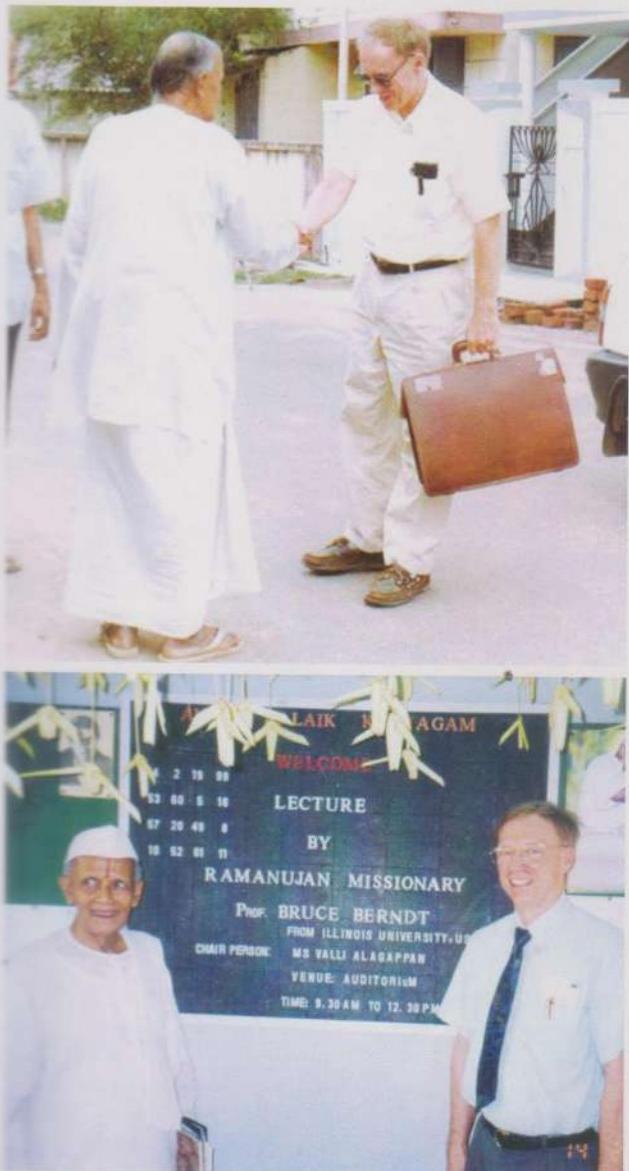
P.K. Srinivasan (PKS), particularly in relation to the renowned mathematician Srinivasa Ramanujan, I recognize the profound impact he had on me by understanding and appreciation of Ramanujan's work. My

interest in Ramanujan's contributions began in February 1974, and from May 1977 onwards, my research was predominantly focused on his work. As I delved deeper over the years, my admiration grew not just for



Ramanujan's mathematical genius but also for the rich cultural context in which he lived and worked.

A pivotal moment came in 1987 during the centenary celebration of Ramanujan's birth, which I helped organize at the University of Illinois. At this five-day meeting, I had the opportunity to connect with various scholars, including John Eshen and M. Chandrasekhar and the eminent astrophysicist from the University of Chicago. It was during this meeting that I learned of significant letters



pertaining to Ramanujan held in the archives in Delhi. Despite Chandrasekhar's struggles to obtain copies of these letters, he ultimately succeeded through the assistance of then-Prime Minister Rajiv Gandhi. This discovery was crucial, as many letters were connected to Ramanujan's employment at the Madras Port Trust Office.

Recognizing the importance of these letters, I approached Robert Rankin, a fellow attendee and one of G.H. Hardy's last PhD students, to propose a collaborative effort to publish these letters along with any correspondence related to Ramanujan. Rankin was enthusiastic about this initiative, and with the help of P.K. Srinivasan's reminiscences, we embarked on a six-year journey to compile a comprehensive collection entitled *Ramanujan: Letters and Commentary*, published jointly by the American and London Mathematical Societies. This work beautifully blended mathematical insights with cultural reflections, presenting Ramanujan's letters, including a heartfelt note to his father written in Tamil that discussed mundane yet significant aspects of life, such as keeping drains clean.

In considering what PKS means to me, I hold deep admiration for his commitment to mathematics and his dedication to teaching it to children. His efforts to popularize Ramanujan's work lay the groundwork for appreciating the mathematician's contributions in India. While Ramanujan is celebrated in certain circles, there remains a gap at higher levels of academic recognition. PKS's pioneering work in

compiling Ramanujan's letters was invaluable to my research, and I feel a personal debt of gratitude for his contributions.

As a prominent mathematician in the 21st century, my perspective on the landscape of mathematics in India is multifaceted. I have interacted with numerous educators and scholars, and I find it challenging to compare my experiences with PKS's influence, which is uniquely significant. Many of my influential teachers were encountered later in my academic career. However, just as PKS holds a singular place in the lives of many, specific mentors can only be compared to their peers, each representing unique influences at different life stages.

Reflecting on my visits to the museum established by PKS, I am struck by its uniqueness. This institution, dedicated to the legacy of an individual mathematician, is unparalleled globally. My experiences visiting this centre were memorable; the hospitality I received from PKS was exceptional. His dedication to educating and inspiring students through curated resources is commendable.

As we consider the cultural and educational disparities between Indian and Western mathematicians today, it becomes clear that elite Indian scholars often prioritize contemporary fields over Ramanujan's work. This misconception limits the exploration of Ramanujan's influence across various mathematical and physical domains. Despite the brilliance of Indian mathematicians, the focus tends to shift toward what's deemed "fashionable," such as algebraic geometry,





rather than engaging with Ramanujan's foundational contributions.

This observation extends to the numbers of Indian PhD students trained by leading mathematicians like George Andrews and myself—only one, in this case, was under our supervision, indicating a trend wherein the best students are steered away from areas linked to Ramanujan's legacy. This presents a challenge to the broader recognition of his significance.

Given these considerations, it's essential for the mathematics education landscape, both in India and globally, to embrace and celebrate the unique contributions of mathematicians

like Ramanujan. Addressing misconceptions and promoting foundational knowledge can greatly enrich the field and inspire future generations of mathematicians.

In conclusion, I believe fostering an appreciation for diverse mathematical histories and encouraging exploration beyond contemporary trends will strengthen educational approaches in India and worldwide. Emphasizing the importance of figures like Ramanujan in schools can lay a vital foundation for future research and innovation in mathematics.

Mathematical Friendship

Ms. R Vijayalakshmi

Retd. Maths Teacher

When I first met PKS around 1963, his attire with a Gandhi cap and a north-Indian style dhoti and Kurta reminded me of that Subhash Chandra Bose with a patriotic fervor. At that time we didn't know each other in connection with mathematics.

Our first meeting in link with mathematics was at a Math Association meeting. Association of Mathematics Teachers of India (AMTI) was already functioning in a big way. But as we wanted an Association only for ourselves at Madras it was established in 1965. I was attending its first meeting with a small group of teachers along with PKS. As the inaugural speech was in progress, PKS passed on a math problem written on a slip among teachers and I it reached me still unsolved. During the same year, through a tough selection process, some of us were selected to attend a Summer Institute in Madurai which gave me a big boost and my interest in mathematics increased manifold. I was





working on Prime numbers at that time and wanted to find a formula for Prime numbers like Gauss and Euclid. I understood that PKS gave this problem using prime numbers only and so I wrote the answer. This link helped us travel as math teachers for many decades.

Interest in Math, cooking, music and dance etc. made PKS give stages to students to participate in the competitions like Mathematics in music, Mathematics in dance, Kitchen mathematics and so on. We sent our students to his school to take part in all those programs as I was equally interested in cooking, music and dance and of course Math!

My respect for him grew more and more when I witnessed many expositions organized

by PKS during 1970s. For nearly 3 years both our schools competed in math expos and the judges used to wonder 'whether the competition was between PKS and Vijayalakshmi as both their students are communicating their understanding of math very well.' I could be the motivator for my students all because of P K Srinivasan. He was the one who enjoyed and cherished the prize winning moment of the students of both our schools, than me or the concerned parents. He created so much awareness among the public, teachers and parents through these kinds of expositions and even the lecturers invited from colleges were surprised that school students can talk so well about chosen exhibits and on topics.

In Tribute to P.K. Srinivasan: A Legacy of Love and Learning

Prof. P. Achuthan

Retd. Sr. Professor of Mathematics and HOD, IIT Chennai

P.K. Srinivasan was a striking figure, often seen walking with his characteristic chappals, *angavastram*, and cap, exuding a presence that captivated those around him. His tall stature and warm demeanour reminded many of dignitaries on television or in the halls of Parliament, where the spirit of purpose and inspiration flourishes. To me, Srinivasan was much more than a friend; he was a profound influence, a mentor, and a beacon of knowledge.

He embodied the words of the Bhagavad Gita:

“Bhoktaram yajnatapasam
sarvalokamahesvaram.”

“I am the enjoyer of all sacrifices and austerities; I am the Supreme Lord of all worlds.”

This verse resonates deeply with those who saw him as a friend to all, a kind



spirit dedicated to advancing the cause of mathematics education.

Reflecting on his life, I wrote: “*Dear P.K., you are my most intimate bosom friend. Your presence lingers eternally in my thoughts, even as time marches on.*”

Srinivasan’s impact was not confined to the physical realm; he remains forever alive in our hearts through the legacy of his efforts in education. His relentless pursuit for mathematical understanding and accessibility, his poignant writings, and his unyielding encouragement to countless individuals shaped the landscape of mathematics in India.

His contributions were not just academic; they were woven into the very fabric of our educational ethos. In a memorable moment, he stood with pride at the Madras University during the unveiling of Ramakrishnan’s portrait in the Hall of Fame, a testament to the illustrious individuals of our time. Just, as there exists a Hall of Fame for the greats of American mathematics, so too, should there be a place of honour for Srinivasan’s remarkable achievements.

Through the years, Srinivasan championed the idea that mathematics is accessible to all. He frequently reminded us in his gatherings, “What have you done for mathematics?” His words called upon educators to instil a love for mathematics at every level, encouraging the next generation to move beyond their fears of the subject. He believed in empowering young minds, opening doors to worlds of

possibility—just as it is said in the Gita:

“*Suhrdam sarva-bhūtānām jñātvā mām
śānti-mṛcchati.*”

“*Knowing that I am the friend of all beings, one attains peace.*”

Srinivasan’s belief that mathematics intersects with all disciplines was evident in his engagement with students and educators alike. He fostered an environment where learning flourished, where students no longer viewed mathematics as a daunting task but as a delightful exploration.

As he championed mathematical understanding, he drew inspiration from the works of Ramanujan, uncovering the gems of knowledge hidden within his legacy as if to say, “Look closely, and you will see a universe of creativity and potential.” His journey to connect the past with the present through Ramanujan’s works stands as a testimony to his passion for mathematical education.

In the spirit of collaboration and innovation, he worked tirelessly to establish math clubs and expos, transforming the conventional approach to learning. Imagine rooms filled with eager children, vibrant displays of mathematical creativity, and an atmosphere brimming with excitement—all orchestrated by Srinivasan’s fervour for mathematics.

Yet, despite his significant achievements, Srinivasan remained grounded and committed to serving others, much like the ideals presented in the Bhagavad Gita’s teachings. His service extended beyond the



realm of mathematics; he was a man who cared deeply for his community and sought to uplift those around him.

Over his 81 years, Srinivasan faced his share of struggles, yet his spirit never wavered. He devoted his life to ensuring that every child had the opportunity to appreciate the beauty of mathematics, much like the profound lessons contained in ancient scriptures. He understood that true knowledge transcends mere facts and figures; it nurtures wisdom and elevates consciousness.

As we honor the legacy of P.K. Srinivasan, let us embrace his vision and continue the work he so passionately pursued. His name—P.K.S.—is more than just initials; they represent *Purity, Knowledge, and a Spirit* of service that will forever echo in the halls of mathematics education. In every classroom, every student nurtured, and every lesson taught, his legacy lives on, reminding us of the vital role that mathematics plays in understanding the world.

With each new generation of learners, let us strive to cultivate the love and respect for mathematics that Srinivasan embodied. Through our efforts, may we continue to touch hearts and minds, inspiring a world where mathematics shines brightly at the centre of knowledge, creativity, and connection. I thank P.K. Srinivasan, for your indelible mark on our lives. Your journey inspires us.

The partnership between celebrated professors and dedicated school teachers is vital to the advancement of mathematics education. Mathematics is not limited to a profession; it is a vocation that spans all educational levels, from primary school to university. This discipline emphasizes conceptualization, precision, and clarity. The challenge of making mathematics engaging and enjoyable is significant, and it's one that Shri P.K. Srinivasan passionately pursued throughout his career.

P. K. Srinivasan's commitment to mathematics education was not confined to the classroom; it extended into all realms of academia. Despite the differences in the educational levels he engaged with, he believed that all levels of mathematics are interconnected. His work at the school level was foundational, establishing a solid base for later studies in higher education.

During the birth centenary of Ramanujan in 1987, various events were organized to celebrate his contributions to mathematics. Professor Srinivasan played an instrumental role in these activities, showcasing his extensive research and commitment to educating others. His passion for mathematics was not just about teaching techniques; it was about instilling an appreciation for the beauty and significance of the subject itself.

Srinivasan's achievements included establishing math clubs and conducting large math expos aimed at children from various age groups. These initiatives were designed to create an accessible, engaging environment where students could explore mathematical concepts without fear or anxiety. His approach emphasized hands-on learning and creative expression, recognizing that these elements are essential for fostering a love of mathematics.

The significance of the two volumes he published on Ramanujan—"Ramanujan, the Inspiration" and "Ramanujan, the letters and reminiscences," cannot be understated. These works were the result of extensive research and deep dedication. Srinivasan travelled to Kumbakonam, engaging with Ramanujan's relatives and gathering original materials. This meticulous process not only enriched the historical understanding of Ramanujan but also contributed to the broader narrative of Indian mathematics.

Throughout his life, P.K. Srinivasan demonstrated an unwavering belief in the potential of mathematics to enhance

understanding across multiple disciplines. His ability to inspire students and educators alike became evident through his lectures and community engagements. He consistently encouraged critical thinking and creative problem-solving, equipping his students with the tools necessary to navigate complex mathematical concepts.

Srinivasan's engaging personality, marked by his vibrant communication style and approachable demeanour, allowed him to connect with a diverse audience. He embodied the qualities of a great teacher—a blend of knowledge, kindness, and dedication to the craft of education. His legacy is characterized by his commitment to making mathematics accessible and enjoyable for all.

In summary, P.K. Srinivasan's influence reaches far beyond his own lifetime. The foundational work he established in mathematics education continues to resonate within classrooms and academic institutions across the globe. His contributions not only honour the legacy of Ramanujan but also invite future generations to explore the wonders of mathematics.

The echoes of Srinivasan's life and work affirm that his efforts to demystify mathematics and make it approachable for everyone will persist as a beacon of inspiration for educators and students alike. His enduring spirit serves as a reminder of the transformative power of mathematics education—a legacy that will undoubtedly inspire future generations.

The Man Who Knew His Students

Shri. Mani Y. Lakshminarayanan, Ph.D

Pennsylvania, USA, Student, 1969-'72, MHSS

Even after almost 52 years later, it gives me immense joy to recall some special instances from my high school years (1969–1972) at Muthialpet High School. As this is Mr. PK Srinivasan's centennial birth year, I

feel privileged to have been asked to write about what I remember about Mr PKS as a teacher and a mentor to hundreds of students who were blessed to learn mathematics from him and see the passion he had for Math.



The Muthialpet High School, Number Friends Society (Estd 1955)

The New Math Exhibition: 'Mathematician, The ACE Model Builder' on 26, 27, 28 January 1973



I completed my three years as a student in Tamil medium and had teachers (hope I am spelling their names correctly) like Mr Ganpat Chettiar, Mr Sirajuddin and others. But I had the privilege of having PKS as our substitute teacher for Algebra & Geometry, quite frequently while our regular teacher was away for various reasons including illness. Every student would remember him as different and unique from his affinity to cotton outfit, White Dhoti, White Jubba and White Cap (dressing up like Subash Chandra Bose or Mahatma Gandhiji), his style of communicating with impeccable English language skills and of course, to his love and passion for teaching mathematics. Though most of us used to wonder about his dress preference, he seldom discussed his personal reasons for wearing such outfit every day. Mr. PKS was also known to invite his old students (from USA) to visit our class while they were in India and reminisce about their school experiences attending his classes and related learnings. I remember the Kari Nayanar Award that Mr PKS used to give to students with exemplary performance in

Algebra & Geometry. At that time, I did not quite know nor understand who Kari Nayanar was. I came to know about Kari Nayanar only very recently during my interaction with one of his students, Ravikumar, the brother of Rajaram, my classmate who passed away a few years ago. Kari Nayanar is the 47th Nayanar saint. Traditional hagiographies like *Periya Puranam* and *Thiruthondar Thogai* detail his legendary life and services to the Hindu god Shiva. More specifically, Kari Nayanar's contribution to the field of Mathematics was a known fact through his legendary book *Kanakkatikaram*. *Kanakkatikaram* is a Tamil mathematics book believed to have been written by Kari Nayanar. Considering the internal evidence, the work has been dated to the 15th century CE. It is significant that the mathematical methods found in these delve into the material life of the people and approach the dimensions of daily labor enumeratively.

I lived in Saidapet and took the suburban train (electric train) every day from Saidapet to the final Beach station. I remember that PKS used to take the same train almost every day. As a result, I had the privilege of walking with him from the Beach station to our school in Thambu Chetty Street. Though I don't vividly remember the gist of our conversations, I can say that most of them involved work and contributions to mathematics by Ramanujan, mathematical education in America and some general

advice, which made me think of PKS as a fatherly figure during that time. One aspect I vaguely remember absence of any footwear, but I did not have the courage to him the reason. As a result of my interactions with him, I used to get really excited about learning new formulas involving numbers and proving Pythagorean theorem using different approaches. Many times, I used to visit his home in Mambalam by myself or with my friend Sairam. I remember PKS sitting in the middle of a pile of books on the first floor, always hospitable and took the time to talk to us. He used to say "Lakshminarayanan, you should go to America for your higher studies". I fulfilled PKS's wishes by coming to the US for higher studies under a full-fledged scholarship. I obtained my Ph.D in Statistics and have been working in the Pharmaceutical Industries as a Research Statistician for the past 40 years.

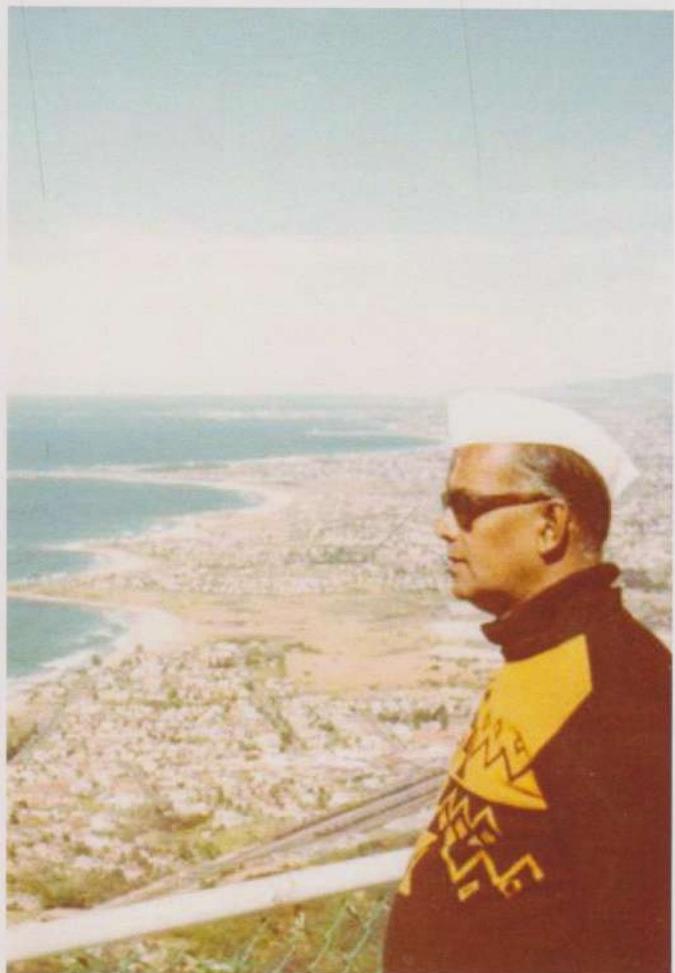
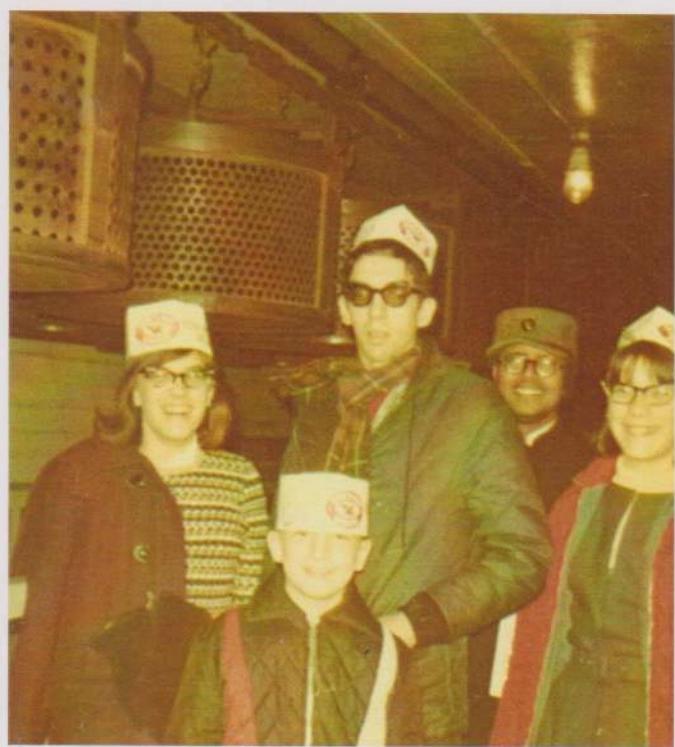
I completed my SSLC in 1972. PKS was kind enough to get in touch with some of us and invited us to participate in a

Math Exhibition—Mathematician, the Ace Model Builder held in January 1973. I was fortunate enough to manage a booth that was dedicated to Magic Squares. I remember getting so excited when I learned the general methodology for formulating Magic Squares of any dimension. I must admit that I was a shy teenager then and had a low self-esteem due to not being fluent in English, having studied in a Tamil medium. Of course, this did not go a long way to impress the convent schoolgirls who visited the Exhibition. The highlight of the Exhibition was on the last day, I acted in a play in which I was chosen to play the role of Ramanujan! I remember PKS telling me that my face resembled that of Ramanujan's. I recall that SNSR Sekar, Rajaram, Sairam and a few others also acted in the play. A portrait was taken on the last day with all the dignitaries including PKS, our headmaster Jambulingam, etc. See the photo below (PKS is seated on the right in the front row, and I am the tallest one in the back row, fifth from the left)

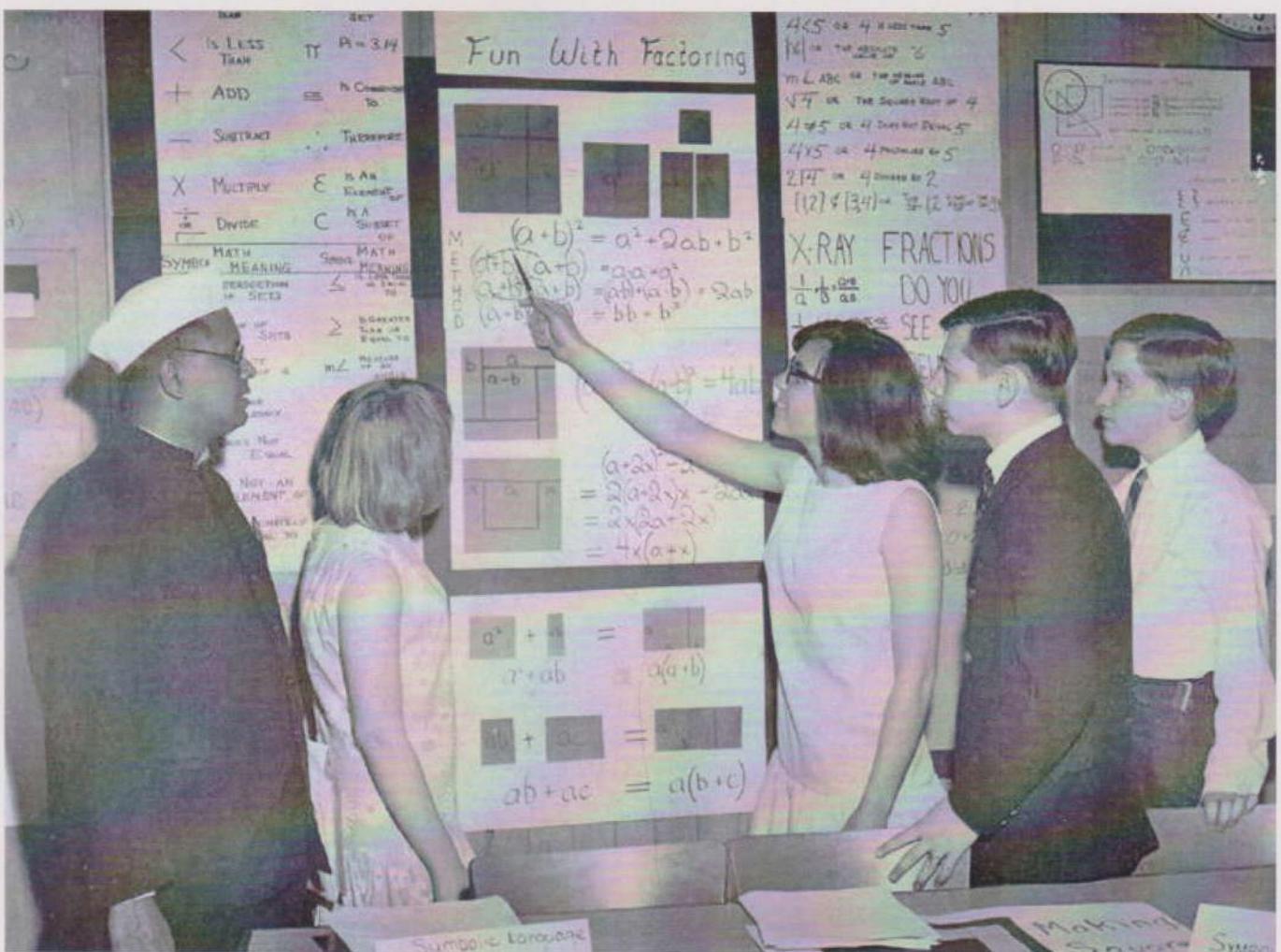
Finally, during our times at school, we all have so many teachers. But only a few make a profound impact on our lives whom we will remember forever. I cannot thank PKS enough for being one of those special teachers who has been my guiding light!



PKS in US



PKS in US



Ramanujan books

Early biographer P K Srinivasan

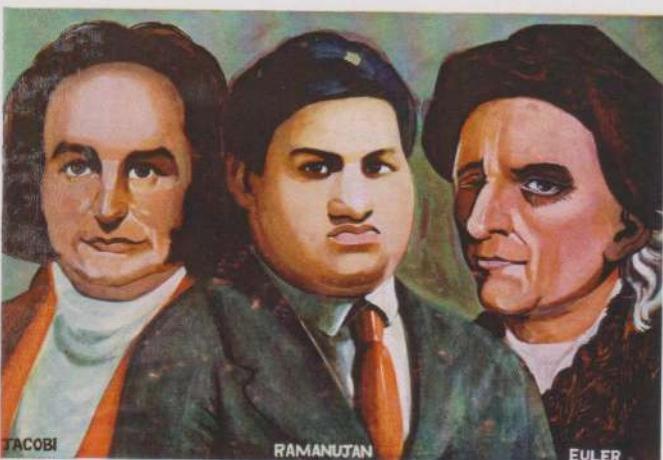


Ramanujan Letters & Reminiscences



MEMORIAL NUMBER
Volume -1

RAMANUJAN *an Inspiration*



MEMORIAL NUMBER
Volume -2

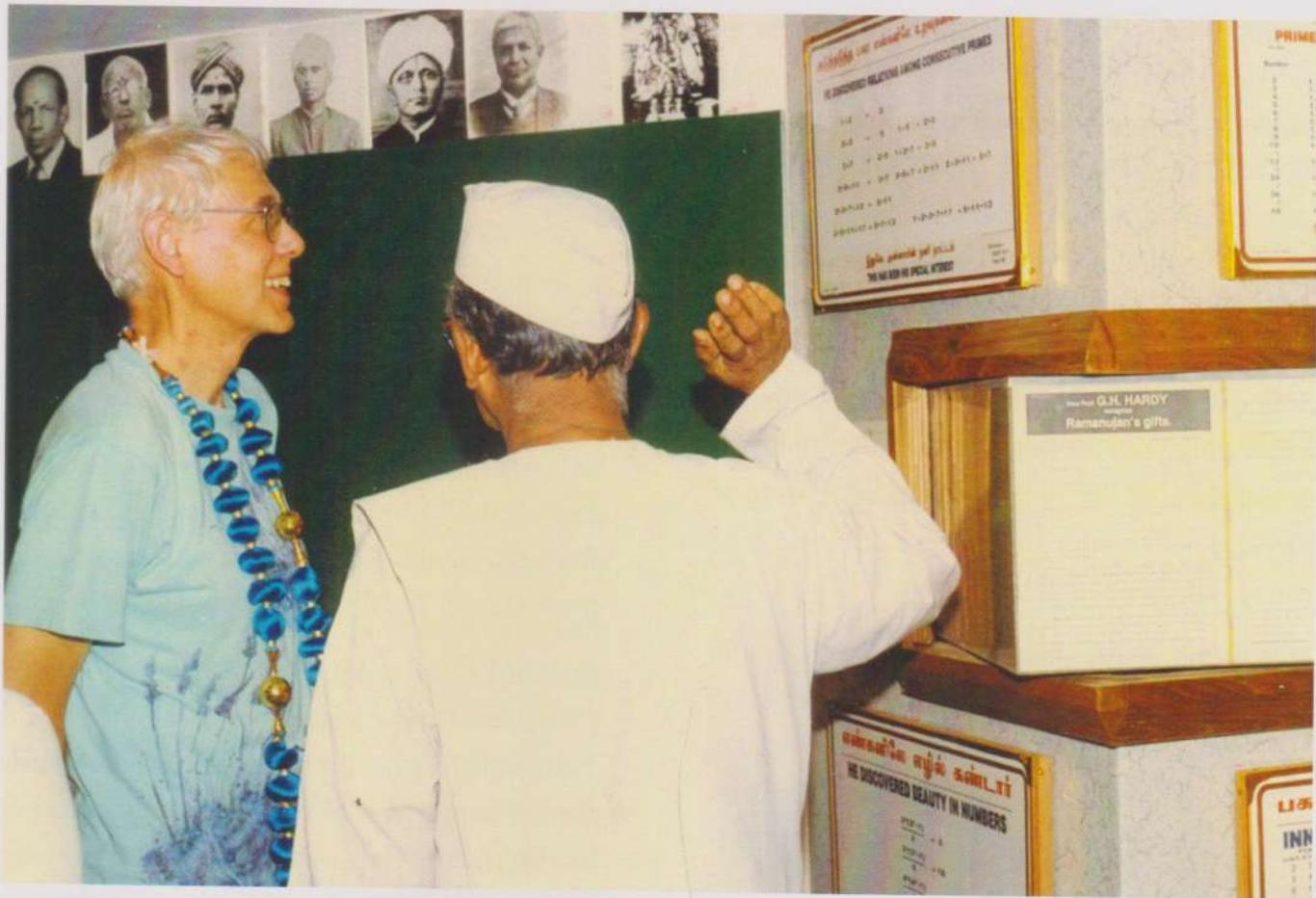
The Ramanujan museum for math

Shri. S Sundaram and Smt. Nirmala Raman

PK Srinivasan, or PKS as he was known, was a dreamer with his head in the world of mathematics but feet firmly on the ground. He was an ardent admirer and practically a devotee of the Indian mathematical genius Srinivasa Ramanujan.

This is what he wrote in a preface to Volume 1 of the Ramanujan Memorial Number: Letters and Reminiscences he helped publish in 1968; "(the dream is to set up a) Ramanujan Memorial Foundation with the object of setting up a permanent memorial





to Ramanujan in the shape of a multistoried building in Madras, housing a planetarium, mathematical exhibition wings, auditorium, library and showrooms displaying applications of mathematics in industry. It will be a house of entertainment par excellence for the layman and it will strive to make mathematics almost as popular as dance and music. We solicit generous support and help from the readers and institutions all over the globe for translation of the dream into reality."

He had to wait for almost 25 years to atleast have a room for the memorabilia of this great mathematician and finally could accommodate it in the premises of the Avvai Cultural Academy, Royapuram, and the man who helped him realise his dream, at least partially, was Shri A.T.B Bose, a businessman interested in education.

The story of PKS's fascination with Ramanujan and how he came to collect letters and other memorabilia related to Ramanujan and how these came to be housed in the Ramanujan Museum in Chennai is a story worth recounting if only to show the power of dreams and a single-minded devotion to a cause.

PKS was introduced to the life and works of Ramanujan in 1948 through a book on "Indian Scientists" published by G A Natesan & Co. The life sketch of Ramanujan moved him and created in him a desire to discover more about the genius.

At that time, PKS was working as a mathematics teacher in Muthialpet High School in Chennai. Through his innovative

methods of teaching, PKS managed to kindle an interest in mathematics amongst his students.

PKS felt that Ramanujan's life taught you that it was possible to reach great heights of achievement irrespective of your background if only you are true to yourself. This was something he wanted all his students to realise. He was one of the founder members of the Association of Mathematics Teachers in India (AMTI) in 1965 because of a conviction that mathematics teachers needed to have a professional platform to exchange ideas.

In 1954 PKS met Janaki Ammal and S Thirunarayanan, wife and brother of Shri Ramanujan. Subsequently he also met Ananda Rao, who was a contemporary of Ramanujan in England. He was fascinated listening to the many small and hitherto unknown incidences in Ramanujan's life. This meeting and subsequent contacts with relatives and friends of Ramanujan encouraged PKS into thinking about collecting letters and reminiscences related to Ramanujan's remarkable life.

In 1962, the Government of India announced the release of a special commemoration stamp marking Ramanujan's 75th birthday on 22nd December. PKS decided to use this opportunity to bring out a memorial number on Ramanujan, containing letters and reminiscences.

With the help of his students, both former and current, he formed a committee for this purpose in October 1962. They then set about searching for contacts and institutions

in India and abroad that who were connected in any way with Ramanujan.

The committee placed ads in local papers, interviewed people who had known Ramanujan and gathered letters. When he got a response to an ad or found a contact, he would immediately follow up. Often he found himself just patiently sitting while some one rummaged around in an old trunk for some half-remembered letter. Sometimes he would bring in a stenographer skilled in both English and Tamil to record a conversation.

Around the time of Ramanujan's birth anniversary, a celebration was held in Madras to which many of Ramanujan's relatives those who were close to him were invited. PKS exploited this opportunity by stationing former students at the entrance to the hall to solicit comments, correspondence and reminiscences.

He also visited Ramanujan's old house in Kumbakonam and with the permission of the then tenant, searched an old almirah which had not been opened for many years and found a letter Ramanujan had written to his father from England.

Through such untiring efforts, by December 1962, the committee had collected a substantial amount of letters, documents and photographs.

On December 22, 1962, a special function was held at the University of Madras for the release of the commemorative stamp by the

Governor of Madras. The committee was invited by the Mathematics Department of the University, to display their Ramanujan collection. In the special function the Vice Chancellor openly acknowledged the contribution of the committee. PKS also took a group of about 300 students and teachers in a procession from Muthialpet School to Mount Road Post Office, carrying placards of homage to mathematicians of India and bought first day covers. Because of these activities, the work of the committee became more widely known and it was able to secure many more contacts and materials.

After a delay of many years, in 1968 Ramanujan Memorial was published in two volumes; the first volume was mainly biographical while the second described his mathematical work.

These two Volumes had an impact internationally when mathematicians and biographers used these volumes extensively and mentioned them in their works. Many of them, particularly Robert Kanigel who wrote 'The Man Who Knew Infinitiy' and Prof. Bruce C. Bernt, who researched 'Ramanujan's





Lost Notebooks' visited PKS at his residence and found him sharing his long cherished dream of setting up a Math City with child like enthusiasm and details of how he went about collecting the original letters, etc. with a missionary zeal.

PKS met A T B Bose through one of his old students. Bose was a businessman from North Chennai who had an engineering degree from Guindy Engineering College. Due to his deep interest in education and culture, he had decided to establish a cultural centre on a piece of land given to him by his aunt, since he felt that North Chennai was in dire need of a centre for cultural activities. Avvai Cultural Academy was thrown open to the public in November 1991 and had a meeting hall, an open air auditorium, rooms for organising activities, a library, etc. Avvai was the grand old lady of ancient Tamil literature.

PKS invited Bose to his residence to share his long cherished dream. Bose had a thrilling experience seeing the original

letters and photographs related to the great mathematician's life.

PKS's meeting with Bose materialised in the latter agreeing to give one of the rooms in Avvai Cultural Academy for the Ramanujan Museum and Math Education Centre.

In March 1993 at a ripe old age of 83 Mr. C. Subramaniam, Ex-Finance Minister of India, took it as a privilege to travel to Royapuram to inaugurate the Ramanujan Museum and Math Education Centre (RM & MEC) at Avvai Cultural Academy.

Among the many articles on display in the Ramanujan Museum are:

- Application seeking employment in the Port Trust
- Correspondence with G H Hardy in Cambridge from India
- Correspondence with his friends and relatives in India from Cambridge
- Photographs of his house at Kumbakonam

- Photographs of his mother, wife, foster son, etc.
- Charts containing Ramanujan's findings showing him as a Friend of Numbers which can inspire children from classes 5 to 12 and make them come closer to the work of the Mathematician

Bose used his technical acumen to ensure that the exhibits were aesthetically mounted and illuminated and preserved with proper air-conditioning. The originals are displayed in such a way that one can touch them and therefore can remain preserved.

At the age of 70, PKS offered to be the Resident Curator-Director of the Museum. As the Curator-Director he stayed in a single room on the terrace. General public and the academic institutions utilized the opportunity to visit the museum by participating in workshops and conferences organised by him through its Math Education Centre wing.. He felt that a total change in math

teaching methodology in the classroom and math climate in the school and the society at large was an urgent need for the Knowledge Society.

Many eminent mathematicians from the United States of America, Belgium, The Netherlands, Australia, New Zealand, Finland, Canada, Poland, Germany, Austria, France, Italy, Japan, China and Singapore have visited this museum. However, it is a sad reflection of the priorities of our society that very few schools and people from Chennai visit the museum.

PKS organised math workshops for teachers, even for parents, students and teachers together, for media. His efforts led to the Tamil Nadu government declaring Ramanujan's birth Anniversary on 22nd December as Creativity Day.

Some of his pioneering efforts from Math Education Centre of the Ramanujan Museum were



- A Central government approved project on algebra for eight year olds
- State-level Conference on Kolam (Rangoli) and mathematics
- Primary level math Olympiad
- Math kits for primary, middle and high school levels (CBSE has made math labs mandatory in their



schools. State government schools are also working on them)

- ◆ Several enrichment and recreational math books in Tamil and English.

Ramanujan Museum and Math Education Centre continue to organise workshops to propagate mathematics. It has also been

trying to popularize the use of the Math Kit in schools all over India. The museum now has a separate PKS Gallery.

For all that he achieved, PKS's dream of having a Math City in the Ramanujan Memorial Foundation still remains unfulfilled.

S Sundaram is the Principal of K D Ambani Vidyamandir in Jamnagar. He is deeply interested in enabling students to learn Mathematics and in education for the 21st century. He can be reached at kdavprincipal.jamnagar@ril.com.

Nirmala Raman is an Education Consultant working in the area of Primary Math. She is the daughter of Late Shri PK Srinivasan and is engaged in making a documentary on him. She can be reached at nirma98@yahoo.com.

**P K Srinivasan whom I did not see earlier whom
perhaps future cannot see**

Prof. Dr. G Rangan,

Prof. M.S. Rangachari, Ex Director Ramanujan Institute of Advanced Studies in Mathematics, Chennai

Any child is made to recite the numbers one to ten and the letters of the alphabet of the mother tongue by its parents. By force of circumstances it teams words and phrases of the mother tongue so as to communicate with people around. However, in the next

step relating to use of numbers which naturally involves operations most of the children falter. They resist teaming since these operations are dealt with as outcome of rote memory. Even in developed countries like USA, UK, to date, learning of arithmetic



PKS with Mr. M S Rangachari



PKS with Prof. G. Rangan

(one of the three essential R's — Reading; Writing and Arithmetic) is a bug bear to children of the age group 6 – 15 in general. Perhaps in present day language part of this is studied by the children of this age group as mathematics, though it boils down to arithmetic is an abstract form in fact, present day boys and girls in college may find it quite difficult to answer questions posed in the school final examination faced by Srinivasa Ramanujan. In most of the countries, the children in school in the age group mentioned above find mathematics a hard nut to crack, the most annoying and uninteresting. To a great extent, the teachers of the subject carry this legacy from generation to generation. Once in a blue moon, some teacher or even a matured mathematician addresses this issue. He or she comes out

with some ideas for the teachers in school to make the subject interesting and enjoyable. Such ideas remain in records or books and are seldom taken for implementation by teachers at that level who want to live with the system with the least strain. Again, quite a few teachers' organizations or Governments spend lot of money and many hours to redress this malady. More often there is only publicity of this effort and the outcome is next to nothing. Individual efforts in this direction are totally absent on the part of the community of teachers. Exceptions in India boil down to a single soul, the late P K Srinivasan (PKS in short). We have been told that his inquisitiveness to know the what and why of mathematics started early in life. We have heard that though he might not have achieved laurels in his collegiate studies,

he was a thorn in the flesh of his popular college teachers, refusing to allow them to proceed with their presentation unless he was convinced about the meaningfulness of concepts and processes. His teachers then considered him a nuisance in their classes. But his inquisitiveness created sense for his mission to make mathematics an interesting and enjoyable topic for children.

In his early years when he was working as a mathematics teacher in the Muthialpet High School in the George Town area, he started a mathematics club and gathered his students to form a group called Number Friends Society. Through such groups, he arranged lectures in various topics in Mathematics by inviting research scholars and lecturers interested in such activities to give lectures and lead the students for discussion. Some of his students became well recognized Mathematicians in later years (Prof Natarajan of ISI and Dr.Jothilingam of TIFR to name a few). One of the authors remembers, his participation in such a programme when he was a research scholar in the University of Madras.

There used to be science exhibitions in the school in which he was working to begin with. He made history by setting a mathematics exhibition in the very same school, much to the chagrin of his colleague — science teachers. They made fun of the effort but were stunned to see the students' response. PKS's innovative skill and his attention to the thought process behind concepts and results were responsible for the success.

PKS was the first to create a sense of professionalism in mathematics school teachers in India. Way back in the 1970s, he organized workshops with a small subscription from each of the participants to make them interact with teachers and researchers at a higher level. One of us vividly remembers how the teacher had to be made aware that the ratio of the intercepts on three parallel lines by a transversal could be irrational so that the standard proof of a result had limitations. Another significant contribution of PKS to this professionalism is his very active work to improve the image of the Association of Mathematics Teachers of India (AMTI) as its Academic Secretary, by enrolling a good number of members, making its annual conferences well attended and well organized by active participation by and interaction among delegates and by instituting awards for innovative teachers.

In a country like India, recognition and honours come very late or not at all. After perhaps two decades after retirement from formal teaching, PKS was conferred the national distinguished teacher award by the Government of India. More than the award, the opportunity to go to Delhi gave PKS a chance of getting an appointment with the then Education Secretary of the Indian Government, Shri Anil Bordia for some 15 minutes. The Secretary was unaware that he had spent more than 45 minutes with PKS in conversation and was so impressed to sanction a project to propagate PKS's ideas in all the regions of the country. The AMTI was made the nodal agency and some eight workshops

were held in several regions like Ranipet in South, Panaji in West, Tinsukia in the north east, relating to all classes, ie. 1 to 12. As resource persons in all these workshops, both of us cannot forget the enthusiasm which PKS showed in the organization, in the academic programme, and more so in making the participant — teachers getting involved in the programme. The way the programmes went with initial resistance from the no-change-attitude teachers and final approbation of the innovative techniques in presenting concepts and results is even now green in our memory.

In a primary level workshop held at Ranipet, Tamilnadu, PKS took a model class for 2nd and 3rd standard students, who all came from Panchayat Board schools in the vicinity, who were very poor. Most of them would have been given up by their teachers as unfit to learn mathematics. He taught parity of numbers (the odd and even numbers)

involving participation of the students in the learning process. PKS demonstrated how the hands on experience got through activities with low cost or no cost materials (in this particular class, he used tamarind seeds), increased their curiosity. The fast learners were seen helping the slow learners. All such aspects can be combined very effectively in the teaching process to make the teaching innovative and the learning of mathematics interesting and trouble-free. The teacher participants were wonder struck, when the children in a chorus raised their voice asking the teacher, PKS to continue the class for some more time. This pattern of a demonstrative class was continued in all the eight workshops. What impressed us very much was that a teacher, who participated in the programme and who resisted the ideas of PKS's first and finally appreciated them at the end of the four day workshop came running after us on seeing us, to report to





us that the low-cost, no-cost material aided instruction suggested by PKS has made him excited about his students learning by themselves with no strain on his part.

PKS had immense faith in children. As one who was the first to bring out documents about Srinivasa Ramanujan, the legendary Indian mathematician defining “Na* Bhutho, Na Bhavishyathi”. PKS started a periodical for school students through the AMTI calling it the Junior Mathematician. Having published three booklets on the creativity of Ramanujan from the point of view of a school student, he was hopeful of identifying talented children through this periodical. His setting up a Ramanujan Museum in North Chennai and his making a mathematical kit to serve as a better alternative for a geometry

box, are landmarks in his achievements.

PK Srinivasan was very keen that pattern recognition by students should form an important aspect of learning mathematics. With the financial assistance from Central Government agencies, he took up a project through the Education Department of the University of Madras, entitled “Teaching Algebra at the primary level through pattern recognition”. He successfully taught some difficult concepts such as polynomial expressions, algebraic equations, etc. to students coming from the lowest strata of society like nomads.

The rat race for technological education and the concern of parents for theirs getting opportunities to have this for their wards is



through coaching classes and the like and the lack of encouragement by organizations and authorities, to a great extent because of egoism, might not have helped PKS to achieve the goals he desired. But, his name cannot be forgotten as the one which stood for ever for the cause of mathematics education and for faith in the talent of young children.

Like P.K. Srinivasan, whom I did not see earlier, whom perhaps future cannot see. He had his own vision he was concerned about how children were considering mathematics right from the primary stage as a bugbear. His mission was to make mathematics interesting and enjoyable to children right from the primary stage.

Shri P.K. Srinivasan's association with esteemed colleagues spans several decades, reflecting a deep commitment to

mathematics education. His vision was to address the pervasive fears children often associate with mathematics, transforming it into an enjoyable and engaging subject from the primary level. His dedication to making mathematics accessible and appealing was evident in everything he published and presented.

In the realm of mathematics education, the collaboration between university professors and school teachers is essential, even if it transcends traditional professional boundaries. Mathematics is not merely a profession; it is a vocation that spans from primary education to advanced scholarly pursuits. This subject encompasses key elements such as conceptualization, precision, and clarity—qualities that are fundamental to effective mathematical practice.

The challenge of making mathematics engaging and enjoyable is a significant endeavour, one that Shri P.K. Srinivasan passionately pursued throughout his career. His dedication was a source of inspiration for both his colleagues and students, including myself and Professor Rangan.

Professor C.T. Rajagopal, who held a prominent position in the academic community, also recognized the importance of Srinivasan's work. Although he had initially shown little interest in school education, Rajagopal represented a hallmark of mathematical thinking. He emphasized the need for clarity and precision in mathematical writings and was particularly intrigued by Srinivasan's efforts to illuminate the life and contributions of Ramanujan. It was Rajagopal who facilitated an introduction between Srinivasan and Anand Rao, who had firsthand experience with Ramanujan.

Srinivasan's commitment to making mathematics accessible and enjoyable was not just a professional goal; it was a profound mission that shaped his approach to education. He sought to introduce Ramanujan's legacy in a way that made it relatable and understandable for students, fostering a deeper appreciation for the beauty of mathematics.

The establishment of the Ramanujan Museum and Math Education Centre, led by P.K. Srinivasan, is regarded as a pioneering initiative. For 75 years after Ramanujan's passing, there was a noticeable lack of effort to commemorate his legacy and educate

future generations about his brilliance. Srinivasan's work has become essential for the community to understand Ramanujan's significance in Indian mathematics.

Reflecting on the centenary of Ramanujan in 1987, many within the AMTI were indifferent to the celebrations. Nevertheless, Srinivasan's meticulous planning ensured a successful event in Kumbakonam, where Ramanujan studied. His vision enabled the distribution of booklets celebrating Ramanujan's creativity, which garnered international acclaim.

Additionally, Srinivasan advocated for practical approaches to mathematics education, including the development of math kits for students. His efforts extended to workshops that emphasized innovative teaching methods, making mathematics a more relatable subject for younger students. Collaborations during these workshops led to profound insights into effective teaching strategies.

P.K. Srinivasan's tenure as an academic secretary of AMTI significantly contributed to the organization's visibility in India. His dedication to coordinating conferences and facilitating interactions among educators fostered a spirit of collaboration and shared purpose.

The dynamic exchanges between Srinivasan and his colleagues at the Ramanujan Institute highlighted his commitment to mathematics education. Discussions often revolved around developing ideas to make the learning of mathematics enjoyable. Srinivasan's innovative strategies and openness to

feedback created an environment conducive to creative teaching methodologies.

Despite facing challenges, including the perceived barriers between school teachers and university professors, Srinivasan bridged this divide. His willingness to engage with educators at all levels exemplified his belief that everyone is a teacher, contributing to the advancement of mathematics education.

The influence of individuals like Professor A. Narsikar Rao, who advocated for practical applications of mathematics, further reinforces the significance of collaboration

between educators across different levels. The creation of professional organizations, such as the Association of Mathematics Teachers of India, served to unify these efforts.

In conclusion, P.K. Srinivasan's legacy in mathematics education is characterized by his unwavering dedication to making mathematics accessible and enjoyable. His pioneering initiatives and collaborative spirit have left a lasting impact on students, educators, and the broader mathematical community.

$\text{Area} = \frac{1}{2}ab$
 $x+y = a^2b$
 $P = S(1-n.d)$
 $\Delta ABC \sim \Delta ADC$
 $S = \frac{P}{1-n.d} \frac{n!}{r!(n-r)!}$
 $m = f(P_{1200}) [1 + \frac{P}{1200}]^N$
 $\sum_{i=1}^n (x_i - \bar{x})^2$
 H.O. OSL
 $\lim_{x \rightarrow \infty} \frac{\text{ABCD}}{a_{11} - a_{21}}$
 $a^2 + b^2 = c^2$

Reflections on P.K. Srinivasan: A Guardian of Mathematics

Shri. C.V. Narasimhan

IPS, Former CBI Director and DGP of Tamil Nadu

My journey with P.K. Srinivasan began in 1942 when he joined the Mathematics Honours program at Loyola College. Although I was already a student acquainted with the vibrant atmosphere of Loyola, Srinivasan

came from Pachaiyappa's College and required some time to acclimate to this new environment. Despite the initial adjustment period, our friendship grew as I observed his unwavering dedication to understanding





mathematical concepts deeply before moving on to new topics. He was not a student who accepted ideas on faith; he sought clarity and proof, continually questioning assumptions and advocating for a solid foundation upon which further understanding could be built.

This intellectual curiosity sometimes made it difficult for him to keep pace with the syllabus as mathematics, by nature, builds upon itself in a logical progression. He would often share his concerns with me, expressing his bewilderment at why lectures would begin with phrases like "let us assume." He would counter such statements with probing questions, seeking to understand the necessity behind assumptions instead of just accepting them.

Despite these challenges, when we completed our third honours course and faced the first-year exams, Srinivasan

expressed dissatisfaction with his experience. Consequently, he decided to withdraw from the honours track and shift to the BA Pass course, a choice that allowed him to rediscover his passion for mathematics. Ultimately, this initial approach to understanding mathematics laid the groundwork for his innovative teaching methods that would later flourish at the school level, igniting enthusiasm for the subject among countless students.

Although we parted ways at Loyola due to his transition to the Pass course, we maintained our friendship through extensive correspondence. Srinivasan was a man of the highest integrity, transparent in every interaction and communication. His authenticity was evident in his gait, his speaking style, his laughter—a hearty expression of joy that reflected the fullness of his spirit. He never engaged in hushed conversations; his voice resonated with clarity

and openness. To picture him whispering would be unthinkable—it was his nature to share his thoughts candidly and earnestly.

Another remarkable aspect of Srinivasan was his profound sense of national consciousness. I witnessed this firsthand during a visit he made to Delhi in the 1970s. While there, he was in pursuit of a wristwatch and sought my guidance on potential shops. When I suggested various brands, Srinivasan firmly stated his desire for an HMT watch, expressing his intention to wear an Indian product while attending a mathematics conference in Australia. His commitment to supporting Indian craftsmanship spoke volumes about his patriotic spirit and vision.

Srinivasan's monumental contributions, particularly regarding Ramanujan, are noteworthy. He was a pioneer in this field, dedicating years to gather material that documented Ramanujan's life. He travelled

from house to house, connecting with people who had known Ramanujan, meticulously compiling letters and recollections. This resulted in the publication of two seminal volumes in 1968 that would serve as essential resources for anyone studying Ramanujan's work. Renowned mathematicians, such as Robert Kanigel, recognized P.K. Srinivasan's efforts, citing them as foundational in understanding Ramanujan's life and contributions.

As we consider his profound understanding of education, it is essential to acknowledge an event in 1942 that highlighted his national consciousness. Shortly after joining Loyola, an emotional incident galvanized our college community. Following the demise of a Kasturba Gandhi, students collectively abstained from classes, coming together in silent solidarity. Srinivasan stepped forward, calling for attention, and delivered a poignant speech about the gravity of the situation,





urging us to express our collective sentiments without resorting to formal protests. Despite being new to the college, his sincerity and commitment to the cause captivated our attention.

Throughout our lives, Srinivasan maintained his connections from college, reaching out to select individuals with whom he had established a bond. His correspondence was never mundane; it was an exchange marked by genuine concern over societal issues, educational challenges, and the landscape of national discourse. For instance, he would regularly communicate opinions about political challenges contemporaneously affecting education, emphasizing the need for recognition of the teaching profession.

His letters conveyed not only his thoughts on the necessity for improvement in education but also his unwavering support for fellow educators striving for excellence.

His correspondence even extended to personal experiences and observations. One notable occasion involved a controversial remark made by a politician about issues

of corruption and governance. Unable to directly confront the politician in a public forum, Srinivasan chose to express his views in a letter to the editor of a prominent newspaper. He articulated the perspectives of ordinary citizens against the backdrop of political rhetoric, capturing the complexity of public sentiment while maintaining an air of integrity.

Srinivasan's essence was characterized by his deep love for mathematics and an enduring belief in its power to transform lives. He approached every challenge with an open heart and an unyielding spirit; his life exemplified a relentless pursuit of knowledge.

Reflecting on P.K. Srinivasan's life, I recognize a man dedicated to the propagation of mathematics and a figure who inspired countless students to view mathematics through a lens of curiosity and excitement. His legacy is one of integrity, passion, and an unwavering commitment to making mathematics an accessible and enjoyable endeavour for all.

The Educator of Educators

A tribute by Dr. S.S. Rajagopalan

Senior Educationist

Shri P.K.Srinivasan was a unique personality with a wide range of perceptions. Among his varied activities, three areas, namely popularising Srinivasa Ramanujan, enrichment of Mathematics curriculum and transformation of the Mathematics class into a vibrant center of intense activity, stand testimony to his devotion and commitments.

His veneration for Srinivasa Ramanujan took him to several places in search of materials regarding the life and work of the great soul. He brought out two volumes in memory of Ramanujan which are the first authentic version of his life. He wanted to demystify Ramanujan so that young children also consider Ramanujan close to them. For this he produced three booklets containing some of Ramanujan's work in language and content accessible to school children.

The Association of Mathematics Teachers of India(AMTI) founded by late Padmashri S.Natarajan and nurtured by Dr Ananda

Rao and Shri V.Arunajatai underwent a sea-change when PKS took up the Secretaryship. The journal, Mathematics Teacher focussed on three primary objectives, namely, a peep into new developments in Mathematics, better classroom teaching process and finally answers to individual teachers' queries. He introduced Mathematics Talent Competition for different age groups. For him, giving a B.Sc problem to a X Std student is not talent search, but the innate ability to attack a problem differently was the real mathematical talent. Divergent thinking was a key element of talent.

He played a pivotal role in upgrading the Mathematics Curriculum some forty years back and he authored several textbooks for NCERT and the Tamilnadu Textbook Corporation. He was way ahead of others in his knowledge of Mathematics curriculum around the world. An anecdote would show his versatility. In early 1970's Tamilnadu Mathematics Syllabus Committee chaired by Prof SuryaPrakash held its meetings in

M.I.T. Campus. When the introduction of a particular concept was widely contested by some members, PKS would, like Watson, say 'It's elementary. Let us move to the Panchayat Elementary School in the neighbourhood'. He would demonstrate how the concept was easily understood by children. The dissenters would only sigh 'All our teachers are not PKS's' He could with no preparation teach any concept to any class. It would be only through activities and children enjoyed his sessions.

For him Mathematics is Beauty Incarnate and it is the duty of the teacher to bring out that beauty in the class. Patterns was his forte to explain the aesthetics of Mathematics. His knowledge of the life and achievements of Mathematicians was remarkable and in no

time he would reel out anecdotes from their lives.

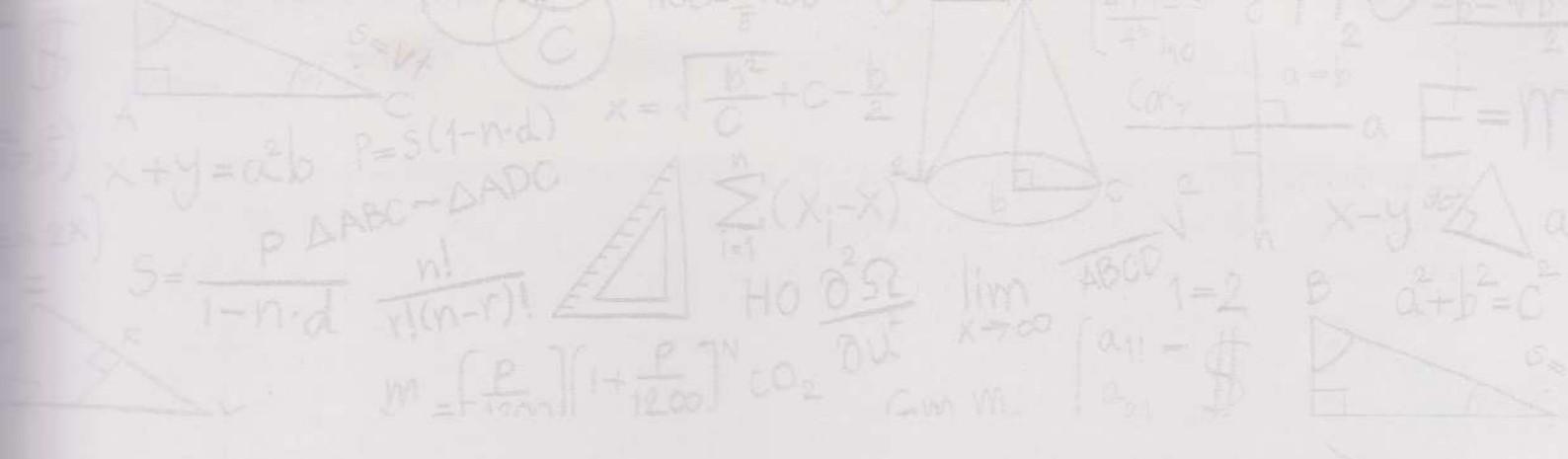
He loved his students and no wonder they too loved him and considered him as their GURU. He had immense faith in the children's ability to think and he believed that a teacher should exploit that faculty among children. His eternal call was 'Enjoy Mathematics for it is Beauty personified'

As an individual he was a nationalist and a Gandhian to the core. Not only did he wear Khadar with a Gandhi cap on but he lived the simple life befitting his faith. Like Gandhiji he was a perfectionist who would not tolerate slip-shod work. He had a big Mathematical Library at home with books and journals from all parts of the world.

In short, PKS continues to be an inspiring example for all teachers, young and old.

His message to the present day teachers can be summed up as:

1. Be an eternal learner. Buy and own books and journals
2. Have faith in your students. Never scold them, but encourage them.
3. Give your wisdom to others.



For all you Maths Teachers out There!: On the Mathematics Teachers' Conference at Rishi Valley

Dr. Shashidhar Jagadeeshan

I am sure all you mathematics teachers out there have had the following experience. You meet a stranger and they ask you what your profession is; you say you teach mathematics and immediately they respond by either saying that they were very good at mathematics or by becoming apologetic about having been terrible at mathematics! In short, very few are neutral towards mathematics – they either love it or hate it! Perhaps this is an indicator that mathematics education needs a lot of attention from educators.

Nowadays there is a great push towards improving mathematics education, and in my opinion for the wrong reason: that the world is becoming increasingly technological, and in order to survive one needs to be numerate. While this may be so, I think we need to pay attention to the teaching of mathematics for other reasons. For one, it is a subject that one encounters very early in life and studies for at least 10 years. Mathematics (as well as music) often throws up child prodigies, and proficiency in mathematics is often used

to gauge a child's intelligence. So if a child has had years of bad experience in doing mathematics, this seems to make serious inroads into his self-confidence and sense of well-being. I also strongly feel that apart from making children competent at mathematics, we must strive to convey to them a flavour of its beauty, depth and order.

In the first week of July 2000, the Rishi Valley School organized a conference for mathematics teachers from the Krishnamurti schools and Centre For Learning. Like most things Rishi Valley School does – it was very well organized! We also had the good fortune of having in our midst Shri P.K. Srinivasan, the renowned mathematics educator, who is known for his penchant for keeping mathematics teachers on their toes. The conference could be said to have had four major strands:

- teachers as students of mathematics
- issues concerning the teaching of mathematics



- new ideas/techniques in the teaching of mathematics
- an exploration of the notion of 'order in mathematics'.

To become students of mathematics again or to simply play with a difficult problem was indeed great fun. We were exposed to sessions on 'Transformation Geometry' and 'Problem Solving', where we were actually expected to work on fresh problems and rediscover the anxieties and joys of struggling towards a solution. Of course, once a teacher always a teacher – so while doing problems we also used the opportunity to put ourselves in the place of students and see what insights we may derive about teaching and learning. We

also saw some excellent video programmes related to mathematics, among them 'The Mathematical Mystery Tour'.

It never ceases to amaze me how similar the questions and issues in the teaching of mathematics that many of us face are. Some of these are:

- how does one address the general 'math phobia' that exists in all societies?
- how do we ensure that every child acquires the minimal core competency in mathematics to function in everyday life?
- how does one provide remedial help to the child with difficulties in mathematics?

- do we tend to cater too much to children with a lot of difficulty and not give enough support to those who are really interested and talented?
- can we find or develop a curriculum and learning material which addresses all our needs, that is, it is user-friendly, ensures that there is sufficient drill to help master key skills, and also helps children discover the beauty of mathematics?

We spent a few sessions discussing many of these issues. Opinions regarding whether mathematics was for everyone ranged from an affirmative 'yes' to a more humble 'perhaps not.' I understand that attempts to develop and organize curricular materials are already under way in many of our schools. Perhaps some further meetings of concerned teachers towards this end of sharing and working on curricular materials would help in the creation of a richer learning programme. We did come up with two tentative goals at the end of the conference:

1. to create a compilation of nonstandard problems, graded according to age.
2. to create a 'laboratory' manual for activities and projects, again graded according to age.

An exposure to new ideas and techniques in maths education was initiated by a delightful visit to the Rishi Valley Rural School, where we took part in the 'metric mela': a demonstration by rural children of measurement skills and techniques that they had mastered in non-formal and practical situations. Later that day we had a presentation by CFL teachers

about a 'maths mela' that they had conducted and, in general, the role of a mathematics laboratory in schools (look out for a book based on this experience, 'Maths Alive!'). We were treated to a couple of fascinating sessions on paper folding and mathematics. We also participated in playing mathematical games; this, apart from being instructive, proved to be a truly fun session. There was a session on investigative techniques in the teaching of mathematics and one of the teachers talked about his experiences and suggestions regarding ICSE projects. All these exposures clearly reflected various attempts to bring life to a subject otherwise considered arid. However, it is not yet clear how we can integrate these innovations as part of our regular curriculum and meet the demands of mastering skills and obtaining certification.

Shri P.K.Srinivasan had a couple of sessions where he exposed us — in a hands-on manner — to his idea of 'pattern language' as a basis for the teaching of algebra, and also made several suggestions for project ideas that draw directly upon the concepts of the mainstream curriculum. He also shared with us his views on mathematics education in general. He had a valid point when he said that, rarely are the practitioners of mathematics also educators of mathematics, and hence while great mathematics is being done all over the world, mathematics education remains in quite a pitiful state. Shri Srinivasan himself has devoted his life to developing new pedagogic approaches to school mathematics, and has been a consultant for

many schools and textbookwriters. Late in his life, he continues to attract maths lovers – students and teachers - to the Ramanujam Museum in Chennai. It would benefit us all if someone did a systematic study of Shri P. K. Srinivasan's work and methodologies (in fact, a documentary filmmaker who attended the conference seemed to be doing just that!).

Finally there were two expositions that approached from two different angles the central notion of order in mathematics. One talked of the surprising occurrence of patterns in nature that have a mathematical basis. The many occurrences of the Fibonacci sequence of numbers was especially highlighted. The second talk focused on experiments and investigations in number theory that yielded patterns and results that were truly astonishing. Krishnamurti's oftquoted statement 'mathematics is order', however, remains as enigmatic as ever. The 'is' juxtaposed between mathematics and order perhaps needs the greatest attention and dialogue, and may indeed be a fruitful subject for a seminar for practicing mathematicians.

Without question, we all enjoyed being in the beautiful valley for the conference. What struck some of us who have been to other professional meetings was that there was no sense of competition present and no one was trying to prove how clever they were. We were just a group of adults with a common concern sharing and probing

various issues. I do think we should have more such meetings and build on many of the ideas initiated in this conference. Perhaps, in addition to all that was attempted at this meeting, we could also take up as a workshop theme one area of mathematics that most children find difficult to master (for example, addition of fractions). If we can come up with various ways of teaching the topic and actually prepare some material that can be used later on, it would be very worthwhile. We could also attempt to keep in mind a central concern of our schools – is it possible to bring about attention in a child in the context of learning mathematics? For no matter how innovative and comprehensive our curriculum, unless we understand and convey a quality of attention in the process of learning, mathematics would have only a limited significance in our lives as students and teachers.

We welcome contributions from all teachers. Please send any interesting problems (mentioning the age you think they are suitable for) to Shailesh Shirali, Rishi Valley School, Rishi Valley, Chittoor district, A.P. 517 352, or an abstract of any mathematical activity, project or game (again mentioning the age you think they are suitable for) to Shashidhar Jagadeeshan, Centre For Learning, 462, 9th Cross, Bangalore 560 011.

The birds have vanished into the sky, and now the last cloud drains away.
We sit together, the mountain and me, until only the mountain remains.

Unconventional Person – PKS

Shri. M K Srinivasan

Memories start crowding when I start writing about Sri PK Srinivasan (PKS) whom I have known for several decades. It is difficult to record the extensive contacts I had with him nor can I bring out the intensity of such contacts. PKS came into my life when I was sixteen



years old and had just joined Loyola College in the first year of the Mathematics Honours (3 years) course in 1944. Having been denied a seat in Chemistry Honours in a (princely) college due to a totalling error by the local clerk and having been rejected by the Engineering College for reasons which need not be recorded, I had joined the Maths Honours course as a last resort and that too many days after the classes had started. If nervousness could be personified, that was me. I was also in awe of those who were in the final Honours class, whose room was across the aisle from mine. PKS was one of the seniors. One day, during lunch recess, he came over to my class and asked me to come out. I was sure that I had committed a grave blunder and that I was going to be pulled up. I went out meekly. Instead of the chastisement I was expecting, he put his hand on my shoulder and said, "I don't know your name, but I see that you are also coming from Mambalam station where

I board the train to college. Since we are coming from the same place, I wish to know you better. I am P K Srinivasan. Call me PKS as others do. If you have any difficulty in Maths, tell me. I can teach you". I was so much relieved at his friendly approach and said, "Sir, I am much obliged for your offer. I am not afraid of Maths. But the subjects taught here are so high above what I learnt in intermediate. Moreover, I joined the classes late and I find the professors asking questions every now and then on portions already taught by them. I am not able to answer them. Current portions, I am able to understand. I am nervous because I was not around when the fundamentals were taught". PKS replied, "Look. don't call me Sir, address me as PKS. Also address me in singular no plural please. Tell me your address. I will come and teach the earlier portions". The third day after this conversation took place, he promptly came to my house and began teaching me the basics or calculus, analytical geometry etc. He was my second private teacher in Mathematics (my father was the first teacher from whom I had developed a love for the subject) and I was his first student. Thus began our friendship which spanned over six decades and which ended a couple of years back when he passed away soon after his 81st birthday, which was the last time I saw him. I remember that day vividly because I had lost the vision in my right eye due to retinal detachment and was due for surgery a couple of days later. Since I did not want to miss seeing him on this important (Satabhishekam) day, I

disobeyed the doctor's orders and attended the function.

A Deprivation

Back to my college days. Since contacting me the and allaying my fears, PKS and I used to see each other almost daily till 1951 when I had to leave for Bangalore to take up a job. Those were heady momentous days for both of us. PKS was an unconventional person even as a student. Whenever I visited his house, I could hear arguments in which one party was always PKS. But he was a dutiful, obedient son to his parent, but his obedience came to the fore after long arguments with them. Some mutual friend called him 'quixotic' in my presence and I immediately retorted, "If you call him Don Quixote, I am prepared to be his Sancho Panza". PKS gave me all his notebooks for my study during summer holidays. When I went to return to them, he said. "I will take them later on". Little did I realize why he said so repeatedly. Perhaps, in his subconscious mind, he did not want to see them again. The bubble burst in March 1945 when he refused to sit for the final examination, a pass in which would have given him the Master of Arts degree. He coolly announced that he was withdrawing from the examination. It was a bombshell for his parents and all his friends. Everyone tried to persuade him to write the examinations, may be he will pass in some papers, rest he can write later on, in any case, he will not miss out on the MA degree for which he had studied all these years and for which his parents had spent

so much money. But PKS was adamant and had his way. Perhaps had he written the examination and taken the MA degree, he would have joined the teaching profession and retired as a conventional Professor or joined the Government accounts department (the ultimate refuge of all mathematics students those days!) and retired at last as a Deputy Accountant General. But destiny had higher goals in store for him and so he did not write his MA examination and was awarded the recommended BA degree, called BA (Rec.) uncharitably spelt by some of his pseudo friends as BA (wreck).

In retrospect, I feel that it was an unconscious deprivation, engineered by destiny, to enable him to play a pivotal role in the development of Mathematical education in later years.

His mind was full of mathematics, not in the world of theorems and riders, but in the very leaching of the subject, which for years had suffered very much at the hands of unimaginative teachers and prosaic professors. Mathematics was a much-hated subject for many and had to be tolerated, memorized and then discarded at the earliest opportunity. How many fertile brains and budding talents were permanently driven away from the beauty of the subject and bore the scars of poor teaching of Mathematics! Indeed. Mathematics was the loser.

The NYCA

Not many today would remember or even know about NYCA which is an acronym for 'National Youths Cultural Association' the



very first group of youthful members founded by PKS. The NYCA was unique in several respects. It was open to all youth between 16 and 30 years of age. Self-improvement was the prominent goal. Its main activities were: (i) maintaining a library in which novels were banned, (ii) holding of regular monthly meetings (iii) studying Mahatma Gandhi's works and (iv) publishing a periodical for the benefit of members, aptly titled 'On the March'. PKS was the moving force behind this Association. Apart from enlisting his own circle of friends as members, he persuaded several younger students also to join the association. It is a matter of great credit that many of the younger brigade rose to eminent positions in later life such as Dr M K Srinivasan, the eminent and popular physician-cum-surgeon, Sri V Rajagopalan, an UN expert in Public Health, Sri V Ramachandran, IAS, who rose to become Chief Secretary, Sri R Venugopal, who later headed the Spencer group of companies, S V Isan (then known as Sukhavanam), who acquired a double MA degree and became a professor, Dr V Raju who later founded a well known hospital and nursing home. brothers Sri R Parthasarathy and Sri P R Narasimhan, who rose to top positions in the Indian Railways, Sri A V Venkataraman, a11 eminent social worker and union leader. Sri S Srinivasan, who became a senior finance executive at Neyveli Lignite Corporation and several others whose names I forget at this distance of time. The library of NYCA, which PKS helped to build, had several useful and prominent books of which a large number

was on Gandhiji. PKS guided the purchase of books and insisted on all the members reading them. The contents of the books were discussed at the monthly meetings. It was a pleasure to attend these meetings. PKS insisted on everyone attending them. Attendance was taken and after three absences, a member was issued a stern notice. The Executive Committee consisted of a Chief Whip (shades of Parliament!) whose job was to ensure that all members attended the meetings or sent in valid excuses for absence. At each meeting, the Secretary had to read the minutes of the previous meeting which were then adopted. PKS insisted that every member spoke at least for a few minutes at the meetings. All these helped the young members lose their nervousness and develop the art of public speaking which came in handy during their adult years. The magazine 'On the March' was a great success and a big draw among the members. The Association had not much money, so it depended on a few members to type out the articles whenever they found time. In between, those who had a good handwriting were roped in to write them out. Decorations and embellishments were drawn by hand but they were colourful. I remember it ran for a few years but its 'march' was arrested when it ran out of volunteer editors. But during the period it was brought out, it reverberated with fiery writings and helped many to hone their writing skills. Many friends of PKS fondly remember NYCA and 'On the March' whenever they recall their youthful days.

The library which PKS helped to build contained many rare books on Gandhiji, the poet Subrahmanya Bharati (another favourite of PKS) and Bertrand Russell, the mathematician philosopher. Since novels were taboo, the library contained many biographies and autobiographies which PKS used to say, ‘they can be read like novels, as they are so interesting’! In sum, PKS took a leading role in shaping our young impressionable minds.

A Self-made Man

After he withdrew from the MA examinations and, in a sense, burnt his boats, he rose again and completed his MA degree, besides going one step further and acquiring M.Phil. degree as well. His forte was teaching Mathematics. To my eternal regret, I lost touch with him during the period of his regeneration. I left Madras in 1951 and returned to the city for a short while between 1972 and 1975. It was only after I finally and permanently settled down in 1982, that I could take up the threads of my acquaintance with him. Meanwhile, PKS had grown much in stature and had been well rounded by a variety of positive experiences. He had joined the ranks of teachers in the Muthialpet High School, found a congenial Head Master who was willing to try out the innovative methods of teaching devised by PKS.

In a matter of few months, he inculcated an abiding interest in Mathematics in most of his students which they had not felt before. Of course, there were forces at work behind his back among other teachers who planted

a doubt in the minds of the Management that the ‘PKS method’ may not get results in the examination, which was the ultimate goal of any school. PKS did not bother; but bided his time. His students scored better in the examination than in the previous years and thus the ‘ghost’ of the complaint was laid to rest! More than anything else, he helped the students found an association called ‘Number Friends Society’, aptly cementing the newly acquired friendship by the students towards numbers and figures. He organized several exhibitions on Mathematics wholly managed by students. This became a regular feature and was expanded to cover problem solving and innovative approaches to mathematics teaching.

Popularising Mathematics

PKS hitched his star to the genius of the Mathematical world, Srinivasa Ramanujan. One of his very first acts was to collect all materials about Ramanujan and also his notebooks and publish them in two volumes. I can do no better ‘than to quote from the immensely readable ‘The Man Who Knew Infinity’ by Robert Kanigel (paperback edition, 1992, pp. 342-343):

On October 8, 1962, a group of men met at the three-hundred-year-old Mallikeswarar Temple, at the northern end of Linghi Chetti Street, in Madras’s Georgetown district, whose streets Ramanujan had walked half a century before. Here, in the shadow of the temple’s ornate gopuram, PK Srinivasan, a mathematics teacher at Muthialpet High School, brought his friends together to launch

a project. He had first read about Ramanujan twenty years before. Ever since, he had tried to inspire students with his example. Then, eight years before, a friend had taken him to meet Janaki and Tirunarayanan, Ramanujan's surviving brother. Now, as the seventy-fifth anniversary of Ramanujan's birth approached, he was determined to bring out a memorial book, filled with letters and reminiscences, to honour him.

Recruiting the high school's alumni, or "old boys," to help him, he placed ads in local newspapers, interviewed people who had known Ramanujan, gathered letters. When he'd get some flicker of interest from an ad for contact, he'd immediately follow up. Often, he found himself just patiently sitting there, while someone rummaged around in an old trunk for some half-remembered letters. Sometimes he'd bring in a stenographer, skilled in both English and Tamil, to record the conversation.

Ramanujan's seventy-fifth birthday was observed across South India. Town High School, in Kumbakonam, named one of its buildings after him. A stamp was issued in his honor; two and a half million copies of his passport photo, reduced to inch-high form, colored sienna, and valued at fifteen new paise, sold out the day they were issued. In Madras, around the time of the anniversary, a birthday celebration was held in his honor, and many of those who had been close to him or his family were in town. Srinivasan exploited the opportunity, stationing old boys at the entrance of the hall to solicit comments, correspondence and reminiscences.

At another point, he visited Ramanujan's old house in Kumbakonam; Tirunarayanan had given him permission to look through the almirah, a sort of wardrobe, kept in a separate locked room of the house. In the presence of the tenant, Srinivasan unlocked the room. When he opened the almirah, which was covered with dust and cobwebs, cockroaches swarmed out. But in it, despite Tirunarayanan's assurance that any such find was unlikely, he found a letter Ramanujan had written his father from England.

PK Srinivasan's compilation of letters and reminiscences came out in 1968. Brief biographies of Ramanujan appeared, in English, in 1967, 1972, and 1988; in Tamil in 1980 and 1986; and in Hindi, Kannada, Malayalam, among other Indian languages.

PKS took upon himself the task of celebrating Ramanujan's birthday every year (December 22nd) as 'Mathematics Day'!

To make Ramanujan popular among young children, he resorted to construction of Magic squares and taught them easy ways to construct them. It was a pleasant ritual for him to greet every student or friend on his birthday by constructing a magic square for that day and sending it to the 'birthday boy'! He even extended it to wedding days and other pleasant anniversaries. He trained even young children to construct magic squares for any particular day.

Another innovation by him was the 'Maths Kit' costing just about Rs. 100/- or so, which contained all essential tools for a student to do algebra and geometric problems

independently. He wanted to mass-produce it but I was informed that it was commercially not viable. But PKS never accepted defeat. He enlisted the help of donors to push through the manufacture and sale of these kits. But, in the end, I am told, it was not a success despite several attempts.

His greatest ambition was to teach algebra to children at the tender ages of three to five and make them unafraid of the symbols and formulae.

He did accomplish what he intended to achieve. He selected a few schools which went along with him ideas. He had no inhibitions to work with any type of school, but he used to say with tongue-in-cheek, "The less elite the better, for they would at least be receptive to what I say"! He was right. The well-known elitist schools would not deviate from the beaten path. For them, the success tag was to achieve cent percent passes with a few top ranks thrown in. Any new ideas or experiments would eat into their well chiseled routine which aimed at 'routine mass production of human parrots'.

He created another avenue for the creative outlets of girl children. That was the drawing of 'kolams', the beautiful patterns drawn on the ground with dots and lines, purely based on numbers and their clusters. Many do not realize the existing connection between numbers and kolam designs. It was PKS who brought this to the notice of children and adults alike. It was a signal service to popularising mathematics.

To cap all these activities, he wrote interesting books both in English and Tamil, re enforcing age-old mathematical traditions but in simple language for easy grasp by children. One can only admire at his perseverance and farsighted vision in planning and pursuing his life time goals. PKS was a role model indeed in many ways for parents and teachers.

Unexpected Support

Towards the closing decade of his life, PKS found the Avvai Kalai Kazhagam at Royapuram receptive to his ideas and supporting him in many ways. All his pent-up ideas and energies poured out in a long procession and very soon Avvai Kalai Kazhagam became the chosen spot for a permanent exhibition of Ramanujan papers, letters and artefacts. He invited many eminent teachers of Mathematics for frequent conferences, seminars and get-togethers. He brought together all the relatives of Ramanujan on his birthday which began to be celebrated on a bigger and bigger scale every year. My only regret was, and that was PKS's disappointment too, that I was not able to frequently visit him at Avvai Kalai Kazhagam which became his 'home away from home'. The reason was this. That place was at the northern end of Chennai and I was living at one the southern suburbs near the airport. However, we kept in touch through telephones. Once in a way. I used to call on him at the Kazhagam premises and he used to proudly show me the additions he had made since my last visit.

Summing Up

PKS lives in our memories now. But unless someone records in detail the events in his life, the ups and downs he had faced, his ever-present optimism and his trenchant criticism of the 'establishment'. these memories will fade, may. In this place, legends will grow which will take away the true picture of his struggles and successes. Today thee are many in the field vowed to make the learning of mathematics an easy task. All powers to their elbows! But when PKS struck this path, there was none to assist him. In fact, he was derided for choosing mathematics on which, to experiment his teaching methods. Many of his colleagues felt that mathematics does not lend itself to easy teaching. PKS proved

them all wrong. He was literally a friend of Mathematics.

To me, he was more than a friend: he was an elder brother, a mentor indeed. He knew my parents very well and also attended my marriage: in fact, he was my best man. He was tutor to two of my children and also attended the marriages of all my children. He and I shared our inner most thoughts on several subjects. What I have written now reflects only a fraction of my feelings towards him. Someone should start writing hi biography soon. I am prepared to assist the writer after delving deeper into my memories and bringing out more episodes in our joint lives. May that day come soon!

PKS — Less Known Facts

Shri. A V Venkataraman

Eminent social worker and union leader

Close on the heels of independence, a band of enterprising and enthusiastic young men, with kindled spirit and wavelength assembled together in TNagar and felt the need for forming an association to develop a spirit of camraderie and instill a patriotic fervour in the service of the society at large. Appositely named National Youths Cultural Association, which title itself succinctly interpreted the goal and the aim of the body and pith, it was also its mission to foster a national outlook, spread Gandhism and imbibe and propagate the quintessence of India's great great cultural heritage and rich tradition. To crystallize this idea into live and vibrant movement appeared a Herculean task and though it may sound unbelievable and even apocryphal, it did come into reality. It demanded of the young men a Spartan outlook and serious attitude, bereft of flippancy or frivolity, admitting no room for fun or frolic or pleasures of a mundane kind.

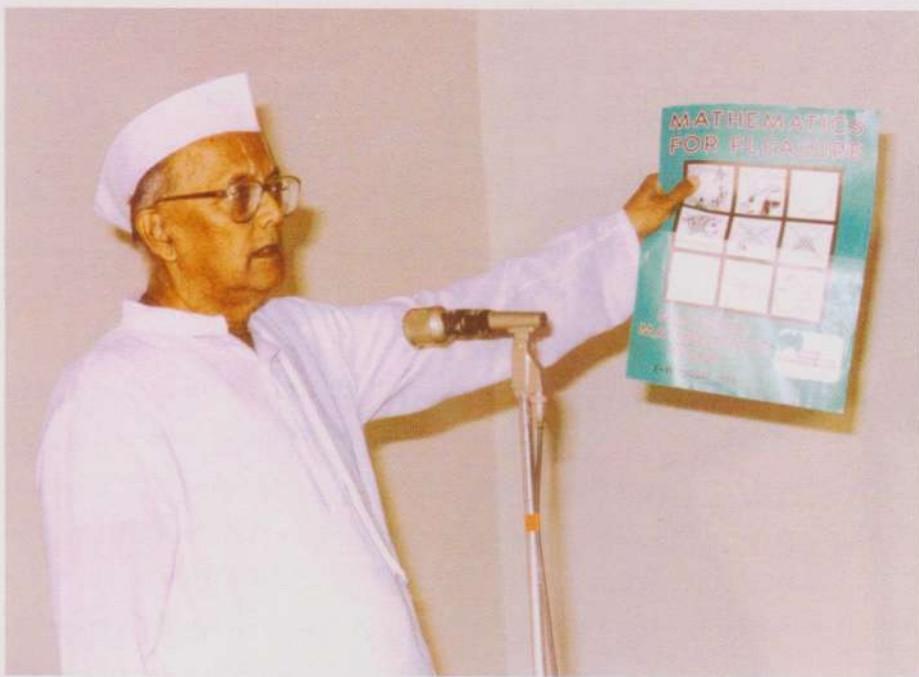
And the author and prime mover of this dream come true was none other than that

innovative teacher and missionary or of mathematics and crusader and publicist of that mathematical legend and genius Shri Srinivasan Ramanujan. An avatar of PKS not known to many!

In his khadi attire of kurta, panchakatcham veshti and peak Gandhi cap, PKS with his serious mien, punctuated with his characteristic grin brought to hear on this organization, all his dedication and commitment, knowledge and experience and gave it a shape and content so as to fulfill its lofty ideals.

I shall remember those days when we used to meet daily at street corners in Usman Road, TNagar and go on discussing subjects of obvious interest for hours even past midnight. It gave us a pep and a vision.

PKS 's exuberance, total identity with the cause and his involvement was bewitching and infectious that drew similarly inspired youth to the organization in great numbers.



The plan of action was designed to build an ambience of realization of the eternal values of life. Monthly meetings, special meetings addressed by men of eminence (for eg. Rajaji), foster a talent for public speaking and debating skills, a monthly manuscript magazine to nurture and hone writing talent⁵, organizing excursion to archeological and historical importance to indent and deepen one's intellectual horizon and overall build a library consisting only of non fictional books from members' subscription about which activity, Rajaji was initially skeptical, but was later convinced and commended the members on this rare quality among youth. PKS was primarily responsible for this fulfilling activity- a tribute to his innate genius, unique organizational capacity and dogged pursuit.

All these adjectives used herein have a time ringing tone of a fascinating personality who by his candor and sincerity was able to generate an ennobling and elevating

reverence for him and the views he represented. NYCA to him, was a pet second child (though started earlier) just as he adopted maths his likes, ambition, which he brought to everyone's door steps.

The former was, in a way, elite oriented while the latter was a commoner's cause. He was popular with the students, earned their adoration and of course, in equal his peers' envy. True to his innate trait in pursuit of knowledge, he found the sincere Headmaster's post as an obstacle and naturally spurned the offer of an ornamental elevation.

PKS had a very distinguished educational career. And not blessed with affluence and harmonious environment, PKS was forced to change midstream from an Honours to Pass course and he negotiated this shift so well that he came out of it in flying colours; indeed a very difficult feat. This was PKS. Adversity heels his will. And another noble quality was that he never acted as merchant of mathematic, nor bargained his knowledge for mercenary or commercial returns.

His pioneering and his significant role as one of the founders and first functionary of NYCA would ever be cherished by his peers in this field and so also his spectacular role in public life.

A noble and committed mind

Shri. S. Raghavan

The 'PKS' that we knew — oh!, what a pleasure it is to recall memories of a great soul that strode the streets of Mambalam like a messiah spreading the message and vibrancy of Mathematics in all its manifestation. A lean, tall, serious looking person that PKS was, clad most of the time in white khadi wearing a Gandhian cap and a cloth (jolna) bag hanging round his shoulder, PKS was truly a picture of simplicity. He spoke in simple and courteous language to one and all, enquiring always about the other's welfare, never complaining but encouraging; even a simple smile as he walked away carried a message of cheer and enthusiasm.*

But what we knew more/better of PKS was as a teacher, a preceptor par excellence. Mathematics in all its fullness flowed from him, indeed a gift of Goddess Saraswathi. Even lesser men like us who observed him and those who were fortunate to have interacted with him were struck by the depth of knowledge and a fullness of understanding of the subject and, in particular, the ease

and clarity with which he made his students and listeners clearly understand the science. Maths, a dreaded and distant subject to many, suddenly became sweet music to learn without strain and enjoy doing so thanks to the, deft handling by PKS.

His lifestyle was very simple. Born in a middle class family, PKS lived in West Mambalam, a conservative less developed part of the greater Mambalam (to the west of the Mambalam Rly station). Not very many houses in WM boasted of Power supply or piped water connections. Street taps were inadequate and crowded. One has to wade through knee deep water in the rainy season. Yet, PKS the genius, a lotus as it were, in a great pond, went about his singular task of focusing on and spreading the message of Mathematics.

I had the opportunity of meeting PKS on several occasions as a school boy, even went to a cafe with him. He was a man of simple food habits. He did his BT course in



the nearby Saidapet Govt. Teachers' training college. Often, as part of the training, these teacher trainees used to be deputed as short term teachers to Govt. Schools to fine tune their teaching skills, but to PKS, it was an opportunity to reveal his erudition in the subject and gain admirers. I have heard this say from another BT student (a relative of mine who stayed with us during the BT course and who later became the Principal of a college in Salem).

One cannot miss noticing PKS; he was very active. It was 1947. The nation was vibrating with the 'sounds of freedom'. I still remember PKS meticulously organizing Independence Day celebrations (on a modest scale) on 15th August, 1947 in the backyard of our house in West Mambalam with a sprawling ground that could accommodate easily a few hundreds. PKS, the Gandhian, was everywhere, a scene so joyous and

unforgettable. There were no tympanum piercing speeches nor loud filmy music. All prayed for the well being of the nation PKS used to drop by our place whenever he chose. My eldest brother (late S. Srinivasan), a keen student of maths from Loyola and his class fellow (Shri MK Srinivasan, also from Loyola, an intimate family friend of ours and a brilliant student of Maths, a gold medalist topping his studies) gave good intellectual company to PKS. But they opted for Civil Service making their mark.

To PKS, if any student approached him to learn Mathematics in its varied branches, nuances and applications, it was truly a challenge. PKS saw to it that the person developed a grasp and full understanding of the subject appreciating every aspect of it. Isn't it the way one needs to learn our subject to call ourselves informed in the subject — one might ask.

An anecdote here worthy of recall; perhaps. A close family member of mine found it an awful obstacle and an uphill task to clear Maths (and English) at the School final level, a case of treading into the unknown. PKS, whose expertise was sought by the distraught parents, readily responded. We could all see transformation and brightness descending on the lad within a few weeks. He could make the subject sweet and delectable. Guess the final score; 80% Maths and 60% English.

Great result, the manifestation of a dedicated and erudite perceptor's effort to make what seemed a difficult subjects, absorbing, vibrant and interesting PKS makes learning Maths an enjoyable experience. It is mention worthy, Muthialpet High School had the benefit of availing his wholetime service. Needless to add, fortunate were those hundreds of students taught by PKS.

I moved to Delhi in 1958 and, like most aspirants, settled down in a job in the Secretariat. Once, PKS, on his way from the USA (on a short lecture tour) stayed at our

place as our esteemed guest. Some common friends were there to meet him. A couple of them asked him what he had brought from the States (expecting he would pull out the usual mundane utilities people brought those days on a trip to the West). PKS pulled out a few select outstanding works on the subject close to his heart and a couple of gadgets connected with the subject. Only a noble and committed mind could think and act in that manner.

Recognition came to PKS later in his life, aplenty, in India and abroad, as I learnt. As I sit back and reflect, I feel that Mathematics got inalienably associated with PKS in all its spendour rather than stating that PKS expounded on Geometry and Algebra for a living or as a pastime.

I would gratefully end this short biographical note with the words that we were truly fortunate to have had a genius in our midst for long. Besides everything else, PKS was a gem of a man; I join the multitude of men of learning in saluting PKS.

Maths Missionary

Padma Shree Arvind Gupta

an Indian Science Educator

*Skills are Taught
Concepts are Caught*

- PKS

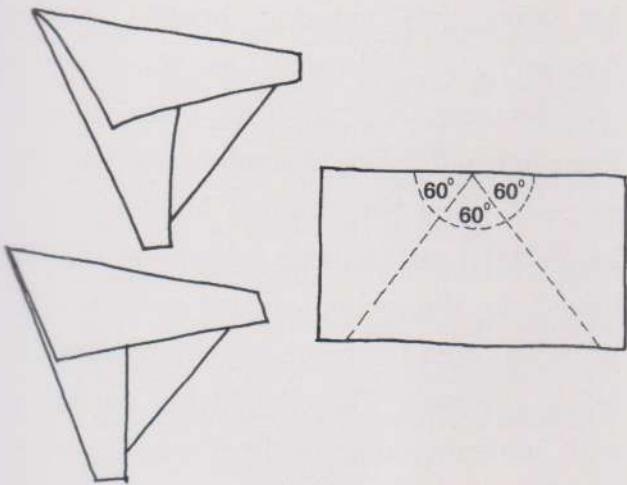
“From the near to the far, from the concrete to the abstract,” is a sound pedagogic approach for learning maths. Before children can understand a thing, they need experience: seeing, touching, hearing, tasting, smelling; choosing, arranging, putting things together, taking things apart. They need to experiment with real things. This is how it’s done in Hungary – a small country which has produced some of the world’s greatest mathematicians. See this amazing freely downloadable video from Teacher TV (<http://www.teachers.tv/video/17878>).

The greatest proponent in India of learning maths through activities was P. K. Srinivans (PKS). As a one man maths missionary he did more than anyone else to imbue children with the love for this most beautiful subject mathematics – the queen of all sciences.

This article is both a tribute as well as a recapitulation of some of PKS’s work.

PKS breathed maths. He dreamt maths. More than anything else he rubbed this infectious enthusiasm on anyone who crossed his path. I first met him in 1986 in a workshop organized by the NCERT at the Sri Aurobindo Ashram in Pondicherry. Those were pre-xerox days so PKS summoned a ream of cyclostyling paper, scissors, glue, old newspapers and one lone stapler. PKS gave each teacher one sheet of paper and asked them to fold an angle of sixty degrees? The teachers were at sea! Schooled into drawing angles only with a protractor they didn’t know any other way of doing it. After 15-minutes of struggle the teachers gave up. Then PKS folded one straight edge (180-degrees) into 3 equal parts and produced an exact 60-degree angle! The teachers were amazed. It was almost like a

revelation - all so elegant and beautiful. He showed them half a dozen different ways of folding 60-degrees. For instance, fold a strip into three equal parts and then into a triangle. All angles of this equilateral triangle would certainly be 60-degrees.



The whole day the teachers folded geometric shapes – a rhombus, a hexagon, an octagon etc. But how do you fold a pentagon? Paper folding by its very nature is binary. As you keep folding and doubling paper you generate 2, 4, 8, 16, 32, 64 ... layers. Weren't these all binary numbers? But how does one fold a pentagon? It is tricky but easy. In 1883, an Indian mathematician T. Sundra Row (Rao anglicized to Row) had shown this in his book *Some Geometric Exercises in Paper Folding* (still in print by Dover and perhaps the world's first ever book on Origami and Mathematics). How? Cut a long 3-cm wide strip from an A-4 size paper and simply tie a knot! Flatten the knot the trim the long ends to get a regular pentagon. How many times have we tied knots and never noticed this!



In this workshop the teachers folded over 80 shapes, some 2-D and others 3-D. All the 2-D shapes were stuck in an improvised file made by stapling a newspaper! They even folded a protractor with a dozen angles from a square of paper. The teachers were overjoyed. Perhaps they learned more practical geometry in these 2-days than they had done in their 2-year BEd course!

This brings us to the moot point – how out of sync is school maths with the real world. Early mathematics evolved from the work of the tailor and the tinker – all practical crafts people. Mathematics has deep roots in practice. The very vocabulary of mathematics is replete with associations of its pragmatic past. Consider for instance, the word “straight line”. It comes from the Latin word “Stretched Linen”. As any farmer wanting to grow potatoes would simply stretch a string to help him sow his crop in a straight line. Any mason would simply stretch a piece of string to help him lay bricks in a straight line. So, over time “Stretched Linen” became “Straight Line”. The “digits” 1 to 10, which we use so commonly come from the Latin word for fingers – the ten little fingers of our hands.

Today school mathematics is totally cut off from real life. The entire curriculum seems to be overlaid by the mumbo-jumbo of professional mathematicians. In the process the entire beauty and joy of mathematics has got buried. The horrendous way mathematics is taught in schools it gives children a life time's distaste for this wonderful subject. If children are to appreciate the beauty of

mathematics, it is imperative for children to get a “feel” for mathematics through practical work.

PKS struggled to infuse life in mathematics. He cried, he wept and pleaded with one and all that mathematics was all around them. And when no one listened he wrote a series of 60 odd articles for the *Hindu* which have become classic. He demonstrated that there was mathematics in coins, in broomsticks, in matchboxes, in the square copy, in bus tickets, in the calendar in every ordinary thing around us. After considerable struggle these articles were collated by the NCERT into a book *Resource Material for Mathematics Club Activities*. This splendid book – perhaps the greatest maths activity

book ever to be produced in India can be downloaded for free (<http://gyanpedia.in/tft/Resources/books/pkshindu.pdf>). After being out of print for almost a decade the book has just been reprinted by the NCERT.

PKS was not always so lucky. In the seventies he wrote two amazing books *Number fun with the Calendar and Romping in Numberland*. He ran from pillar to post, from one publisher to another without any success. Publishers wanted him to write a high-school maths guide which was directly linked to the school mass market. PKS refused. Often his biggest enemies were his fellow teachers. They hated his popularity with students. Some of them even connived and had him beaten up!



But his students loved him. Some of them never forgot the inspiring way PKS taught them mathematics. In the mid-eighties, fifteen years after these two books *Number fun with the Calendar and Romping in Numberland* were written they were published by PKS's ex-student who made good money in an ice cream business in Chennai! This certainly was a good way of paying *gurudakshina*. These books can be downloaded from <http://gyanpedia.in/tft/Resources/books/calendar.pdf> and <http://gyanpedia.in/tft/Resources/books/rompinginnumberlandeng.pdf>). Alas, despite the plethora of government organization and private do-gooders there are still no takers of good books in our country!

PKS shared his passions liberally. In the early nineties he sent me a Xerox copy of the masterpiece *1001 uses of the 100 squares* — by Leah Mildred Beardsley. This landmark book showed possibilities of doing amazingly creative maths activities by using just a square copy — used by children to do their arithmetic sums and available even in far flung villages. This book was a revelation. It can be downloaded from <http://gyanpedia.in/tft/Resources/books/squaresall.pdf>

All his life PKS shunned commercial gains. He generously gave his book *Manual for Mathematics Teaching Aids in the Primary School* to the NCERT for free, without any royalties. This gem is out of print for years and needs to be translated into all Indian languages. He was always clad in a white kurta and dhoti spun out of khadi — rough and homespun cotton which symbolized Gandhiji's concept of Swadeshi. He always sported a Gandhi cap as well. His passion for mathematics was visible as one approached his house in Chennai. The compound gate, walls and grills were laden with equations, identities and proofs-by-sight. This legendary maths teacher passed away in 2005 at the age of 81.

The greatest tribute to PKS will be to translate all his popular books into all languages; to digitize and upload them for the children of the world. There can be no better tribute to this Pied Piper of Maths.

(*Arvind Gupta* works in IUCAA's Children's Science Centre in Pune and shares his passion for books and toys through his popular website <http://arvindguptatoys.com>)

திரு ஜயராமய்யர்

இராமகிருஷ்ண மிதின் பள்ளியின் தலைமை ஆசிரியராகப் பணியாற்றிய திரு ஜயராமய்யர் ஒரு சிறந்த தேசியவாதி. பாரதியின் மேல் அதிகப் பற்றுடையவர். ராஜாஜியின் கொள்கைகளில் அவருக்கு ஈடுபாடு உண்டு. மக்களிடையே, குறிப்பாக இளைஞர்களிடையே தெய்வீகம் நிறைந்த தேசிய உணர்வு வளர்வதற்காக சமூக சேவகர்கள் எடுக்கும் முயற்சிகளுக்கெல்லாம் உறுதுணையாக இருந்தவர். இவரிடம் பயின்ற மாணவர்களில் ஒருவர்தான் திரு P.K.சீனிவாசன். பின்னாளில் P.K.சீனிவாசன் ஒரு பிரபல கணித ஆசிரியராக மலர்ந்து நூல் ஒன்றினை வெளியிட்டபோது தனக்குக் கல்வி கற்பித்த ஜயராமய்யர், அவரையொத்த இதர ஆசிரியர்களை அந்த நூல் வெளியிட்டு விழாவிற்கு அழைத்து அனைவரையும் கௌரவித்தார். 1989ஆம் ஆண்டு இந்நிகழ்ச்சி தக்கர்பாபா வித்யாலயத்தில் நடைபெற்றது. அவ்விழாவில் ஹிந்து பத்திரிகையின் ஆசிரியர் திரு N.இரவியும் கலந்துகொண்டார்.

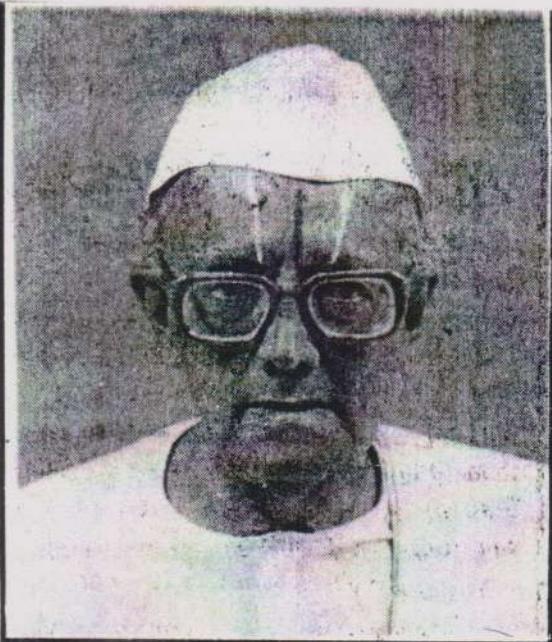
நெருக்கடி காலகட்ட இறுதியில் (1977) நடைபெற்ற வரலாற்றுச் சிறப்புமிக்க பொதுத்தேர்தலில் தொண்டர்களுடன் இணைந்து மேற்கு மாம்பலம் தெருக்களில் வீடுவீடாகச் சென்று சர்வாதிகாரத்தை ஒழித்து ஜனநாயகத்தை வாழ வைக்க மக்களை வேண்டிப் பிரச்சாரம் செய்தார். பாரதி நூற்றாண்டு விழா (1981-82இல்) நடைபெற்றபோது அதை ஒட்டிய நிகழ்ச்சிகளில் விசேஷ அக்கறை காட்டினார்.

இராமானுஜரூ

'கணக்கு!' சிலருக்கு இது வயிற்றில் புள்ளையக் கரைக்கும்... பலருக்கு இது புதிராய் இருக்கும். "நான் கணக்குப் போட்டாஅது சரியாய்த்தான் இருக்கும்" எல்லாம் அவன் போட்டக் கணக்கு...

"என்ன? ஏதோ கணக்குப் பண்ற கட்டுரை மாதிரி இருக்கே அப்படின்னு யோசிக்கிறீங்களா... இது கணக்குப் பண்ற கட்டுரை இல்லை. கணக்கு என்பது ரொம்ப ரொம்ப எளிமையானது; கஷ்டம்னு ஒன்னு கணக்குல கிடையவே கிடையாது என்கிறார் திரு பி.கே.ஸ்ரீநிவாஸன்.

ஒன்று, இரண்டு, மூன்று என்ற இலக்கங்களைக் கண்டுபிடித்ததே நம்முடைய இந்திய நாடு என்ற பெருமை நமக்கு உண்டு. இருந்தாலும் கணக்கின் முக்கியத் துவத்தை இன்னமும் நாம் உணரவில்லை என்பதை. மிகவும் வருத்தத்துடன் நம்மு



தன்பகிர்ந்து கொண்டார் திரு பி.கே.ஸ்ரீநிவாஸன்.

தனக்கு வயதாகிவிட்டது என்பது கூட வெறும் கணக்குதான் என்கிறார் இந்த வயோதிக இளைஞர். அவ்வளவு சுறுசுற்பு. ஆசிரியராகத் தனது பணியைத் துவங்கிய இவர் இன்றளவும் கற்றுக் கொடுப்பதை மட்டுமே தன் முழுநேரப் பணியாகச் செய்து வரும் இவர் ஒரு சுதந்தி

ஓன்(ண்) தெய்வம்!



ரப் போராட்ட வீரரும் கூட...

சென்னை இராய்புரத்தில் அமைந்துள்ள கணிதக் கல்வி மையம் மூலமாக பல்வேறு பணிகளைச் செய்து வருகிறார். கணித மேதை இராமானுஜம் அவர்களைப் பற்றிப் பேசும் போது உணர்ச்சி வசப்படுகிறார், கண் கலங்குகிறார்.

இராமானுஜம் அவர்களைத் தெய்வமாக வணங்கும் இவர், இராமானுஜம் அவர்களின் பெருமையை நம்மில் பலர் இன்ன

$$A + B = C$$

மும் புரிந்து கொள்ளவில்லையே என்று கூறி வருத்தப்படுகிறார்.

கணக்குப் பாடம் என்றாலே குழந்தைகள் பயப்படுவதற்குக் காரணம் இன்றைய கல்வி போதனா முறை என்று கூறும் திரு பூர்விவாசன் அதற்காகப் பல எளிய முறைகளைக் கையாண்டால் கணக்கைப் போல சுலபமான ஒரு பாடம் எதுவும் இல்லை என்கிறார்.

வகுப்பறைக்கு வெளியே யாரும் கணக்கைப் பற்றிப் பேசுவதே இல்லை. நாம் அன்றாடம் உபயோகப்படுத்தும் பொருட்கள், நாம் அன்றாடம் பயன்படுத்தும் சொற்கள் இவற்றின் மூலமாகக் கணக்குப் பாடம் போதிக்கப்பட்டால் அது பசுமரத்து ஆணிபோலக் குழந்தைகள் மனதில் பதிந்து விடும்.

வகுப்பறையில் காணப்படும் அமைப்பு... பல குழந்தைகளின் சிந்தனையைப் பாதிக்கிறது என்ற போது, நாம் ஆச்சியமாய் அவரைப் பார்க்க... இயல்பாய் வரும் நகைச்சவை உணர்வோடு சத்தமாய்ச் சிரிக்கிறார்.

ஆம்! வகுப்பறையில் மாணவர்கள் அமர்வதற்கு உபயோகப்படுத்தப்படும் நீளமான பெஞ்சுமுறையை முதலில் ஒழித்தாக வேண்டும் என்று அடித்துக்கூறுகிறார்.

அதில் வரிசையாய் அமர்ந்து பாடம் கேட்கும் போது, அவர்களது அறிவுத்திறன் மற்றும் சிந்திக்கும் திறன்குறுகிலிடுகிறது. அதனால் உண்மையான கல்விப் புரட்சிவர வேண்டுமென்றால் இந்த அமைப்பு முறை மாற வேண்டும் என்கிறார்.

Exposure... Experience... Expression... Evaluate... இவற்றை மையமாய் வைத்து கணக்குப் பாடம் நடத்த வேண்டும். அனுபவம் மூலமாக வெளிப்படும் கணக்கறிவுக்கடைசி வரை அவர்கள் மனதில் பதியும்...

கணித மேதை இராமானுஜர் பெயரில் அருங்காட்சியகம் ஒன்றை நிறுவி அதன் மூலம் பல்வேறு கல்விப் பணிகளை ஆற்றி வரும் இவர் சர்வதேச அளவில்... இண்டர்

நேஷனல் காங்கிரஸ் மேத்ஸ் எஜிகேஷன். அதாவது கணிதக் கல்வி உலக மாநாடு. ஐந்து முறை நடத்திய பெருமைக்குரியவர்.

நெஜீரியா நாட்டில் கிட்டத்தட்ட ஆறு வருடங்கள் விரிவுரையாளராகப் பணியாற்றியதைப் பெருமையாக நினைக்கிறார். இவரின் மற்றுமொரு சிறப்பு என்னவென்றால் மூன்று வயதுக் குழந்தைகளுக்குக் கூட, கஷ்டமாக நினைக்கும், அல்ஜிப்ராவை எளிமையாகக் கற்றுத்தருகிறார்.

1991-இல் நேஷனல் சயன்ஸ் அவார்டு பெற்றவர். ஆண்டுதோறும் இராமானுஜர் நினைவு நாள் மற்றும் அவரது பிறந்த நாளின் போது, கணித கண்காட்சியைத் தவறாமல் நடத்துகிறார்.

இவரது கண்டுபிடிப்பான மேத்தமே டிக்கல் கிட் (Mathematical Kit) மிகவும் விசேஷமானது. வித்தியாசமானதும் கூட... அதில் சின்னச் சின்னப் பொருட்களை வைத்துச் சுலபமாய்... பார்த்தாலே புரிந்து கொள்ளும் அளவிற்கு அதன் மூலம் கணக்குப் பாடத்தைப் போதிக்கும் போது, நாம் வியப்படைகிறோம்.

ஏழைக்குழந்தைகளுக்காக, நான்கு நாட்கள் இயற்கணித விழா நடத்தியதை மகிழ்ச்சியுடன் கூறுகிறார். பல்வேறு பிரபலமான ஆங்கிலம் மற்றும் தமிழ் நாளிதழ்களில் தொடர் கட்டுரைகள் எழுதியுள்ளார். என்னற்ற புத்தகங்களையும் எழுதி இருக்கிறார். இவரது 'வியப்பூட்டும் எண்கோலம்' என்ற கட்டுரைத் தொகுப்பு புத்தக வடிவில் வெளிவந்து சாதனை புரிந்துள்ளது.

இலாபக் கணக்கு எதுவும் பார்க்காமல் இவர் ஆற்றும் இந்த மகத்தான பணி பாராட்டுக்குரியது மட்டுமல்ல போற்றுதலுக்கும் உரியது.

— சி.வி.சந்திரமோகன்



பி.கே. ஸ்ரீநிவாசன் ஒரு மகான்

ஸ்ரீ A T B போஸ், செயலாளர்
ராமானுஜன் அருங்காட்சியகம்

04	11	20	24
28	23	06	02
10	12	18	19
17	13	15	14

ஐயா பி.கே. ஸ்ரீநிவாசன் அவர்களின் நூற்றாண்டு விழா!

நினைக்கும் போதே மெய் சிலிர்க்கிறது. என் நினைவுகள் நான் அவரை முதன் முதலில் சந்தித்த நாளை நோக்கி பின் சென்றது.

ஒரு காலை நேரம் நானும் எனது நண்பர் அருண் ஐஸ்கிரீம் சந்திரமோகன் அவர்களும் இருபுத்து விளையாட்டு விளையாட்டிட்டு ஓய்வாகப் பேசிக்கொண்டிருந்தோம். பேச்சு நான் செயலாளராகப் பொறுப்பேற்ற கலைமகள் பள்ளிக்குறித்து திரும்பியது. பள்ளியில் கணித ஆசிரியர்கள் அனைவரும் கணிதத்தை மனனம் செய்யும் பாடமாகவே சொல்லித்தருகிறார்கள். அவர்களை வழி நடத்தி கணிதத்தை இரசித்து படித்திட பயிற்சி அளிக்கும் ஓர் ஓய்வுபெற்ற ஆசிரியரைத் தேடி வருகிறேன் எவரும் எனக்குப் புலப்படவில்லை என்று மிகுந்த ஆதங்கத்துடன் கூறினேன்.

உடனே சந்திரமோகனின் முகம் மலர்ந்தது, நான் படித்த சென்னை தம்பு செட்டி தெருவில் உள்ள முத்தியாலுப்பேட்டை உயர்நிலைப்பள்ளியில் எனக்கு ஆங்கிலம் சொல்லிக் கொடுத்த ஐயா பி.கே. ஸ்ரீநிவாசன் கணிதத்தில் மிகுந்த ஈடுபாடு உள்ளவர். அவரே நீங்கள் தேடும் ஆசிரியர் ஆவார். ஆனால், உங்கள் இருவரின் பிடிவாத குணம், ஆவரவர் கருத்துகளில் உறுதியாக இருக்கும் தன்மை ஆகிய இரண்டும் உங்களுக்குள் ஒத்துப்போகுமா என்று எனக்குத் தெரியவில்லை. இருப்பினும் வாருங்கள் வரும் ஞாயிற்றுக்கிழமை நாம் இருவரும் நங்கநல்லாரில் உள்ள அவர் வீட்டுக்குச் சென்று சந்திப்போம் என்றார்.

மெய் சிலிர்க்கும் முதல் சந்திப்பு

மிகுந்த ஆவலுடன் ஒரு ஞாயிற்றுக்கிழமை அவர் வீட்டுக்குச் சென்றோம். வீட்டின்முகப்பில் $E = mc^2$ என்று எழுதியதைக் கண்டு வியந்து, இவரை எப்படியும்



Mr. A T B Bose 3rd from left to right



Mr. A T B Bose addressing

பள்ளிக்கு வரவழைத்து, ஆசிரியர்களுக்குத் தக்கப் பயிற்சி அளிக்கக் கூடிய வேண்டும் என்ற உறுதியோடு வீட்டுக்குள் சென்றேன். தன்னிடம் படித்த மாணவன் ஒருவன் அவர் விரும்பியபடி வாழ்க்கையில் வெற்றிப்பெற்று இன்று தன்னைப் பார்க்க வந்தப் பூரிப்புடன் சந்திரமோகனை வரவேற்றார்.

கதர் வேஷ்டி, கதர் ஜிப்பா, கதர் குல்லா, முகத்திற்கு அழகூட்டும் கண்கண்ணாடி. நான் மெய்மறந்தேன், கைக்கூப்பி அந்தக் காந்தியவாதியை வணங்கினேன். சந்திரமோகன் என்னை அறிமுகப்படுத்தியவுடன் மூவரும் அமர்ந்து பேசினோம். நான் வந்தக் காரணத்தை எடுத்துக் கூறினேன். இன்றைய ஆசிரியர்கள் அவ்வாறுதான் இருக்கிறார்கள் என்று வேதனைப்பட்டார். இருப்பினும், என்னால் உங்கள் பள்ளிக்கு வரஇயலாது என்று ஆணித்தரமாகச் சொன்னார்.

திரும்ப திரும்ப சந்திரமோகன் கேட்டுக்கொண்டதால், மனமில்லாமல் சில நிபந்தனைகளுடன் ஓப்புக்கொண்டார். வாரத்தில் மூன்று நாட்களே வருவேன். நங்கநல்லூரில் இருந்து மின்சார இரயிலில் சென்னை கடற்கரை நிலையத்திற்கு வருவேன். அங்கிருந்து என்னை அழைத்துச் செல்ல ஒரு வண்டி வரவேண்டும். மாலையில் மீண்டும் என்னைச் சென்னை கடற்கரை நிலையத்தில் இறக்கிவிட வேண்டும். சந்திரமோகன் ஆச்சரியமாக அவரைப் பார்த்தார். நான் சற்றும் யோசிக்காமல் சரி என்று சொல்லிவிட்டேன். வேறு வழியில்லாமல் அவரும் ஒப்புக்கொண்டார்.

வரும் வழியில் சந்திரமோகன் மிகவும் ஆதங்கப்பட்டார். தான் கற்றக் கல்வியைப் பிறருக்குச் சொல்லிக் கொடுத்திட வாய்ப்புகள் கிடைக்காதா என்று காத்திருக்கும் ஒரு நல்ல ஆசிரியர் ஐயா பி.கே.ஸ்ரீனிவாசன் அவர்கள். அவரா இன்று நிபந்தனைகள் போட்டுள்ளார் என்பதை என்னால் நம்பவே முடியவில்லை என்றார். இல்லை சந்திரமோகன், அவர் ஏதோ ஒரு மனவேதனையில் உள்ளார். உங்கள் வேண்டுகோளை மறுக்க முடியாமல்தான், நிபந்தனைகள் சொன்னால் நான் வேண்டாம் என்று சொல்வேன் என்று எதிர்பார்த்தார். நான் உடனே ஒப்புக்கொள்வேன் என்று அவர் சற்றும் எதிர் பார்க்கவில்லை. அதனால்தான் ஒப்புக்கொண்டார். இப்படியாகத்தான் எங்களின் கணிதக்கல்விப் பணி தொடங்கியது.

வடிவ மொழியாக இயற்கணிதம்

ஐயா பி.கே. ஸ்ரீனிவாசன் கலைமகள் பள்ளிக்கு வரத் தொடங்கியதும், ஆசிரியர்களின் கணிதக்கற்றல் திறன் வெகுவாக மேம்பட்டது. ஒரு நாள் என்னைக் கூப்பிட்டு, என் வகுப்புக்கு வா, நான் மூன்றாம் வகுப்பு மாணவர்களுக்கு இயற்கணிதத்தை (Algebra) ஒரு வடிவ மொழியாகச் (Pattern Language) சொல்லித்தரப் போகிறேன் என்றார். அவர் கட்டளையை ஏற்று வகுப்பில் சென்று அமர்ந்தேன். மாணவர்கள் அல்ஜிபிரா என்றால் கப்பரா என்றும் நடுநிலைப் பள்ளி மாணவர்கள் சொல்லக் கேட்டிருக்கிறேன். ஆனால், என்ன ஆச்சியம் மூன்றாம் வகுப்பு மாணவர்கள் இயற்கணிதத்தை (Algebra) இரசித்து ஆர்வத்துடன் படிக்கிறார்கள்.

நீ உடனே நான் மூன்றாம் வகுப்பு மாணவர்களுக்கு இயற்கணிதப்பாடத்தை எடுப்பதைக் காணோலி எடுக்க ஏற்பாடு செய். நான் ஹங்கேரி நாட்டின் தலைநகரமான புடாபெஸ்டில் நடைபெறும் பள்ளி ஆசிரியர்களுக்கான உலகக் கருத்தரங்கில் இதனைக் காண்பித்து விளக்க வேண்டும் என்றார். அவ்வாறே செய்தேன். 1990 இல் கலைமகள் பள்ளியில் எனது செயலாளர் பதவியின் காலம் முடிவு பெற்றது. புதிய நிர்வாகம் வந்தப் பிறகு ஐயா பி.கே.ஸ்ரீனிவாசன் அவர்கள் கலைமகள் பள்ளிக்குச் செல்லவில்லை, அது ஏன் என்று எனக்கும் புரியவில்லை.

1991இல் என் தாத்தா தங்கப்ப நாடார், பாட்டி மகமாயி அம்மாள் அவர்கள் பெயரில் ஓர் அறக்கட்டளை நிறுவி, அதில் 'கவி பாரதி வித்யாலயா' என்ற பள்ளியினைத் திருவொற்றியூரிலும், 'ஓளவை கலைக்கழகம்' என்ற பெயரில் ஒரு தொண்டு நிறுவனத்தை இராய்புத்திலும் நிறுவினேன். ஓளவைக் கலைக்கழக கட்ட அமைப்பிற்கு திரு. ஜி. சுப்பிரமணியன், திரு. இராஜசேகரன், திரு. ஏ. மோகன், திரு. எஸ். இராஜேந்திரன், திரு. கே. வேலுச்சாமி, திரு. ஜி. இராமமூர்த்தி ஆகியோர் துணை நின்றார்கள். ஒரு புதிய கட்டடம் கட்டி, 31.08.1992 அன்று திறப்புவிழா நடத்தப்பட்டது. அவ்விழாவிற்கு ஐயா பி.கே.ஸ்ரீனிவாசன் அவர்களை நேரில் சென்று அழைத்தேன்.

பொக்கிடி அறை

கட்டட திறப்புவிழாவிற்கு வருகைதந்த ஐயா பி.கே.ஸ்ரீனிவாசன், நீ உடனே நாளை காலை என் வீட்டிற்கு வா என்று கட்டளையிட்டுச் சென்றார். நானும் அவர் வீட்டுக்குச் சென்றேன். அவர் ஒரு சிறிய அறையைத் திறந்தார். அதில் தரைமுதல் மேல்தளம் வரை கணிதப்புத்தகங்கள் அடுக்கி வைக்கப்பட்டிருந்தன. அப்புத்தக இடுக்கிலிருந்து ஒரு பையை எடுத்துவந்து திறந்தார். என் கண்கள் விரிந்தன. அதில் கணிதமேதை இராமானுஜன் தன் அம்மா, அப்பா, நண்பர்களுக்கு எழுதிய கடிதங்கள் இருந்தன. அவற்றோடு பேராசிரியர் ஜி. எச். ஹார்஡ி (G.H. Hardy) எழுதிய இரண்டு கடிதங்கள் இருந்தன. ஒன்றில் 4 பக்கங்கள், இன்னொன்றில் 8 பக்கங்கள் அவற்றில் கடைசித்தாள் மட்டும் இல்லை.

நான் ஐயா பி.கே. ஸ்ரீனிவாசன் அவர்களைக் கேட்டேன், இவ்வளவு அரிய பொக்கிடங்களை ஏன் இப்படி புத்தகங்களுக்கு இடையே வைத்துள்ளீர்கள். அவற்றின் மதிப்பு உனக்குத் தெரிகிறது. ஆனால், மற்றவர் யாருக்கும் தெரியவில்லையே என்று வருத்தப்பட்டார். என் கனவானது, ஒரு பத்து ஏக்கர் நிலப்பரப்பில் மிகப்பெரிய அருங்காட்சியக வளாகம் கணிதமேதை சீனிவாச இராமானுஜனுக்கு ஏற்படுத்திடல் வேண்டும் என்பதாகும். அவ்வளாகத்திற்குத் தினம் தினம் குழந்தைகளும் மாணவர்களும் ஆசிரியர்களும் கணித ஆய்வாளர்களும் வரவேண்டும். பல கணிதக் கருத்தரங்குகள் நடைபெற வேண்டும். கணித விளையாட்டுகள், கணித கலை நிகழ்ச்சிகள் என்று அந்த இடமே கணித நறுமணம் நிரம்பி இருத்தல் வேண்டும். என்று தன் கனவை விளக்கினார்.

என் கனவைப் புரிந்துகொண்டு நரம்பியல் அறுவை சிகிச்சை நிபுணர் Dr.பி. இராமலூர் த்தி மட்டுமே துணை நிற் கிறார், வேறு எவரும் இல்லை என்று வருத்தப்பட்டார். பின்னர், அதே புத்தகக் குவியவில் இருந்து ஒரு வரைபடத்தை எடுத்தார். அதில் ஒர் அருங்காட்சியகம், ஒரு நாலகம், ஒரு கருத்தரங்கம், ஒரு கலந்தாம்புக் கூடம், ஒரு திறந்தவெளி அரங்கம் என அத்தனையும் இருந்தது. எனக்கு ஒரே ஆச்சரியம், ஐயா பி.கே. ஸ்ரீனிவாசன் அவர்கள் வரைந்த அந்த வரைபடத்தில் உள்ள அனைத்தும் நேற்று புதிதாகத் திறக்கப்பட்ட கட்டடத்திலும் இருக்கிறது, அருங்காட்சியகம் மட்டும் இல்லை.

அதற்குப் பதில் 300 சதுர அடி கொண்ட ஒரு சிறு அறை மீதம் இருந்தது. அதை ஒளி, ஒலி அறையாக மாற்ற இருந்தேன்.

நீ நேற்றுத் திறந்த ஓளைவு கலைக்கழக கட்டடத்தில் மீதம் இருக்கும் சிறிய அறையில் இராமானுஜன் அருங்காட்சியகத்தை நிறுவிடு. நான் காப்பாளராக இருந்து வளர்த்திட மூன்றாவது மாடியில் ஒர் அறையைக் கட்டித்தா என்று கட்டளையிட்டார். எனக்கு ஒன்றும் புரியவில்லை. தயங்கியபடியே கேட்டேன். ஜயா, இராமானுஜன் உலகின் தலை சிறந்த கணிதமேதை, அவரது அருங்காட்சியகத்தை ஒரு 300சதுரடி அறையில் எப்படி முடக்குவது? அடுத்து மின்தாக்கி இல்லாத கட்டடத்தில் தினமும் நீங்கள் எப்படி மூன்று மாடி ஏறுவீர்கள்?

அனல் பறக்கும் கண்களால் என்னை உற்றுப்பார்த்தார். உண்மைதான் என் கனவு 10 ஏக்கர் நிலப்பரப்பில் ஒரு கணித வளாகம்தான். ஆனால், அதற்கு ஆதரவு இல்லையே! மேலும் 3,300 தேற்றங்களை மூன்று குறிப்பேக்களில்தானே (Notebooks) இராமானுஜன் பதிவு செய்துள்ளார். அவருக்கு இடத்தின் அளவு ஒரு பிரச்சனையே அல்ல. எனக்கு என்ன 68 வயதுதானே ஆகிறது; வாரத்தில் ஐந்து நாட்கள் தங்கி, நானே சமைத்து என் இராமானுஜனின் உயர்வை ஆசிரியர்களுக்கும் உலகுக்கும் உணர்த்துவேன். நான் சொன்னதைச் செய் என்று மீண்டும் கட்டளையிட்டார்.

இராமானுஜன் அருங்காட்சியகத்தின் தோற்றும் ஜயா பி.கே.ஸ்ரீனிவாசன்* அவர்களின் கட்டளைபாடி மீதமிருந்த 300 சதுர அடி அறையில், ஜயா கொடுத்திட்ட இராமானுஜன் தன் கைப்பட எழுதிய கடிதங்கள், வரையப்பட்ட ஒவியம், 1957இல் டாடா நிறுவனத்தால் வெளியிடப்பட்ட இராமானுஜனின் 3,300 தேற்றங்களின் நகல் அடங்கிய மூன்று புத்தகங்கள் அனைத்தும் நேர்த்தியாக வைத்திட உறுதி கொடுத்தேன். இராமானுஜன் குறித்து நீ மேலும் அறிந்திட, ரகமி எழுதிய கணிதமேதை இராமானுஜன், ராபர்ட் கனிகல் எழுதிய (The man who knew Infinity) ஆகிய இரண்டு புத்தகங்களை என்னிடம் கொடுத்துப் படி என்று கூறினார். அதுமட்டுமில்லாமல், திறப்புவிழா நாளையும்

குறிப்பிட்டு, இராமானுஜன் அருங்காட்சியகத்தைத் திறந்திட, முன்னாள் நிதியமைச்சர் சி. சுப்பிரமணியத்தை அழை. அவர் நிச்சயம் வருவார் என்றார்.

ஐயா பி.கே.ஸ்ரீனிவாசன் அவர்கள் சொன்னபடி அவர் கொடுத்த இரண்டு புத்தகங்களையும் படித்து, அவற்றிலுள்ள அரிய கருத்துகளையும் புகைப்படங்களையும் எடுத்துக் கொண்டேன். திருவல்லிக்கேணியில் வசித்து வந்த திரு. ரகமி அவர்களையும் நேரில் சென்று சந்தித்து, அவரிடமிருந்த சில அரிய புகைப்படங்களை விலை கொடுத்து வாங்கிவந்தேன். அனைத்தையும் சேகரித்தப் பின்பு, ஒதுக்கப்பட்ட அந்தச் சிறிய அறையில் என் அறிவுக்கு எட்டியபடி நேர்த்தியாக அனைத்தையும் காட்சிப்படுத்தினேன்.

திறப்பு விழா முக்கியமல்ல

திறப்புவிழாவுக்கு இன்னமும் மூன்று நாட்கள் இருக்கும் போது, ஐயா பி.கே.ஸ்ரீனிவாசன் என்னைத் தொலைபேசியில் தொடர்பு கொண்டு, நான் டேராடுனில் உள்ள குன் பள்ளியில் கணிதக் கற்றல் வகுப்பு எடுத்துக் கொண்டிருக்கிறேன், திறப்புவிழாவிற்கு என்னால் வர இயலாது, நீயே எல்லாவற்றையும் பார்த்துக்கொள் என்றார். தலையில் ஒரு மிகப்பெரிய சம்மட்டி கொண்டு அடித்ததுபோல் இருந்தது. என்ன இது, அவர் இல்லாமல் கணிதமேத இராமானுஜன் அருங்காட்சியகம் திறப்பு விழாவை எப்படி நடத்துவது? நினைத் துக்கூடப் பார்க்கமுடியவில்லை. உடனே சந்திரமோகனைத் தொலைபேசியில் தொடர்பு கொண்டு செய்தியைச் சொன்னேன். அவர் பதற்றம் வேண்டாம், விழா நாளன்று அவர் இங்கு இருப்பார் என்று உறுதி கூறினார்.

ஆசிரியர் பி.கே.ஸ்ரீனிவாசன் வகுப்பில் படித்து, பெல்லியில் உயர்பதவியில் இருக்கும் சக மாணவன் நாகப்பனை சந்திரமோகன் தொடர்பு கொண்டார். நீ உடனே டேராடுன் சென்று, நம் ஆசிரியரைச் சந்தித்து. பெல்லி அழைத்து வா. நான் பெல்லியிலிருந்து சென்னைக்கு வரவும், திரும்ப பெல்லிக்குச் செல்லவும் விமான பயணச்சீட்டு எடுத்துவிடுகிறேன். அவரை எப்படியாவது சம்மதிக்க வைத்து பெல்லிக்கு அழைத்து வா. திரும்பவும் டேராடுனுக்கே இரண்டு நாட்களில் கொண்டு விடுகிறேன் என்று உறுதி சொல் என்று பணித்தார்.

தனது ஆசிரியர் பி.கே.ஸ்ரீனிவாசன் அவர்களை நேரில் சந்தித்து அவரது மாணவன் நாகப்பன் எவ்வளவோ கேட்டுப் பார்த்தும், சந்திரமோகன் தொலைபேசியில் எவ்வளவோ சொல்லியும், கணித ஆசிரியர் களைப் பயிற்றுவிப்பதே எனது முதல் கடமை, திறப்புவிழாவை போஸ் பார்த்துக்கொள்வான் என்று உறுதியாகச் சொல்லிவிட்டார்.

திறப்புவிழா ஜியா பி.கே.ஸ்ரீனிவாசன் இல்லாமல்தான் நடந்தது. மாண்புமிகு சி. சுப்பிரமணியம் குறித்த நேரத்தில் வந்து அருங்காட்சியகத்தைத் திறந்து வைத்தார்.



மாண்புமிகு. சி. சுப்பிரமணியம் அவர்கள் இராமானுஜன் அருங்காட்சியகத்தைத் திறந்து பார்வையிடல்

ஒரு தவமான வாழ்க்கை

அவர் சூறியபடியே இராமானுஜன் அருங்காட்சியகத்தினை இரண்டாவது மாடியிலுள்ள ஒரு சிறிய அறையில் காட்சிப்படுத்தியிருந்தேன். டேராடேனில் இருந்து திரும்பி வந்ததும் அருங்காட்சியகத்தைக் காண ஜியா பி.கே. ஸ்ரீனிவாசன் வந்தார். சில மணிநேரங்கள் கவனமாக ஒவ்வொன்றையும் கவனித்தார். முகத்தில் எவ்வித சலனமும் இல்லை. குறைகளைச் சுட்டிக்காட்டவும் இல்லை; நிறைகளைப் பாராட்டவும் இல்லை. அவருக்காக மூன்றாவது மாடியில் புதிதாகக் கட்டப்பட்ட ஒரு சிறிய அறையைப் பார்வையிட்டார். கூடுதலாக இந்த வசதி செய்துக் கொடு என்று எதுவும் கேட்கவில்லை. ஒரு நாளைக்குறித்து அன்று அங்கு குடியேறினார்.

மூன்றாவது மாடியிலிருந்து ஒரு பிளாஸ்டிக் வாளியைக் கயிறு கட்டி கீழே இறக்கி, தனக்கு வேண்டிய பால், காய்கறிகளை வாங்கி அவரே சமைத்து உண்டார். மற்றவர் உண்ண எதைக்கொடுத்தாலும் வாங்கிச்



ஜியா பி.கே. ஸ்ரீனிவாசன் பழைய அருங்காட்சியகத்தில்

சாப்பிட மாட்டார். வெள்ளிக்கிழமை மாலை வீடு சென்றுவிட்டு மீண்டும் திங்கட்கிழமை தவறாமல் வந்துவிடுவார். அது அவர் மேற்கொண்ட ஒரு தவமான வாழ்க்கையாகும்.

கணிதக் கற்றல் உபகரணங்கள்

ஒருமுறை என்னை அழைத்து, பள்ளி மாணவர்களுக்குக் கணிதம் கற்றிட பல நூற்றாண்டாக வடிவியல் பெட்டி (Geometry box) மட்டுமே உள்ளது. ஆரம்பப் பள்ளி மாணவர்கள் மற்றும் நடுநிலைப் பள்ளி மாணவர்கள் கையில் எடுத்துச் செல்லும் வகையில் கற்றல் உபகரணங்களைச் செய்திடல் வேண்டும். நான் வடிவமைத்துக் கொடுக்கிறேன் நீ உடனே செய் என்று கூறி, உபகரணங்களை செய்வதற்கு பீட்டர் என்பரை என்னிடம் அனுப்பினார்.



பள்ளிகளில் தேவையில்லாமல் 20 வரை மாணவர்களை வாய்ப்பாடுகளை மனம் செய்யச் சொல்கிறார்கள். 1957இல் நாம் தசம அமைப்புக்கு (Decimal system) மாறிவிட்டோம். ஒன்பதாம் வாய்ப்பாடு வரை தெரிந்தால் போதுமானது. மனம் செய்யாமல் இருக்கத் தட்டையான 18 குச்சிகள் இருந்தாலே போதும் என்றார். அவர் கூறியபடி ஆரம்பப் பள்ளிக் கற்றல் உபகரணங்களும் நடுநிலைப் பள்ளி கற்றல் உபகரணங்களும் தயாரிக்கப்பட்டன. ஒவ்வொன்றையும் ஒரு தனிப்பையில் வைத்து, விலை ₹500 என்று நிர்ணயிக்கப்பட்டது.

மேற்படி ஆரம்ப மற்றும் நடுநிலைப்பள்ளி மாணவர்களுக்கான ஐயா பி.கே. யீனிவாசன் வழிகாட்டவில் தயாரிக்கப்பட்ட கணித கற்றல் உபகரணங்கள் என்னிடம் இல்லை. அவற்றை யாராவது கொடுத்து உதவினால் அவற்றையும் காட்சிப்படுத்தி அவர் நினைவாக வைக்கலாம்.

நாள் மாயக்கட்டம்

கணிதமேதை இராமானுஜன்தான் முதலில் பிறந்தநாள் மாயக்கட்டத்தை எழுதியதாகப்

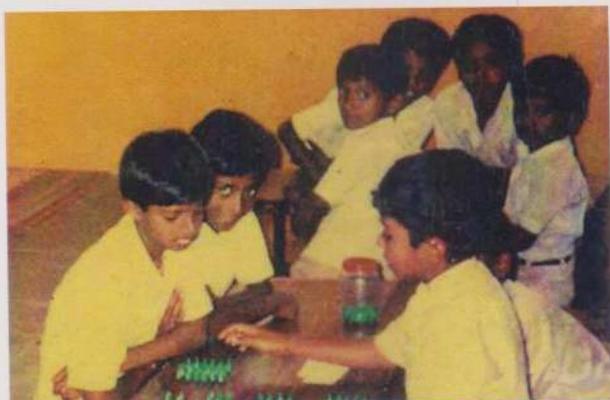


நாள் மாயக்கட்டம் போடாமல் எந்த விழாவும் நடத்த மாட்டார்

பெருமித்தோடு கூறும் ஜயா பி.கே. ஸ்ரீனிவாசன் அவர்கள், எந்த விழாவானாலும் அந்த நாளின் மாயக்கட்டத்தை எழுதாமல் இருப்பதில்லை. சந்திரமோகன் சென்னை நெற்குன்றத்தில் (Red Hills) அமைத்த ஜஸ்கிரீம் தொழிற்சாலை திறப்பு விழாவிற்கு வந்தபோது, அந்த நாளின் மாயக்கட்டம் இல்லாததைக் கண்டு, உடனே எழுதி வைக்க உத்தரவிட்டார். அன்றிலிருந்து எங்கள் கவி பாரதி வித்யாலயா பள்ளியில் நடைபெறும் அனைத்து விழா அழைப்பிதழ்களிலும் அந்த நாளின் மாயக்கட்டம் எழுதிவருகிறோம்.

தபால் துறையில் ஓய்வு பெற்ற திரு. டி.ஆர். மணி அவர்கள் 100x100 மாயக்கட்டம் உருவாக்கியுள்ளார் என்று அறிந்து, பெங்களூரில் இருந்த அவரை இராமானுஜன் அருங்காட்சியகத்திற்கு வரவழைத்து விழா நடத்தி கொரவித்தார்.

கணிதக் கற்றல் விழா



மாணவர்கள் கற்றல் உபகரணங்களை உபயோகித்து கணிதம் கற்கின்றார்கள்.

கணிதக் கற்றல் உபகரணங்களின் பயன்பாட்டை விளக்கிடும் ஒரு மூன்று நாள் காட்சியகத்தை ஏற்பாடு செய் என்று சொன்னார். அவ்வாறே எழும்பூர் காசா மேஜர் சாலையில் அமைந்துள்ள 'மேரி கிளப்வாலா யாதவ்' அரங்கத்தில் ஏற்பாடு செய்யப்பட்டு விளம்பரமும் செய்யப்பட்டது. மக்கள் திரளாகத் தங்கள் குழந்தைகளுடன் வந்தனர். குழந்தைகள் அனைவரும் குதூகலத்துடனும் ஆர்வத்துடனும் கணிதம் கற்றனர். ஆனால் ₹500 கொடுத்து கணிதக்கற்றல் உபகரணங்களை வெகு சிலரே வாங்கினர். ஒரு டன் எடை கணக்கான பாராட்டுகள் குவிந்தன. ஆனால், ஒரு மில்லிகிராம் அளவிலான ஏற்புகள் இல்லை என்று ஜயா பி.கே.ஸ்ரீனிவாசன் சொல்லி வருத்தப்பட்டார்.

இருந்தும் மனம் தளரவில்லை. உன் அலுவலகம் எழும்பூரில்தானே உள்ளது, நான் வெள்ளிக்கிழமை வீட்டுக்குத் திரும்புவதற்கு முன் ஒவ்வொரு வாரமும்

மாலை 4:00 மணிக்கு அங்கு வந்துவிடுகிறேன். 4:00 மணியிலிருந்து 6:00 மணிவரை இருந்து, மாணவர்களுக்குக் கணித உபகரணங்களைக் கொண்டு கணிதம் கற்றுத்தருகிறேன் என்று 'தி ஷிந்து' பத்திரிகையில் ஒவ்வொரு வாரமும் விளம்பரம் செய் என்றார். அவ்வாறே செய்தேன். முதல் வாரத்தில் 14 மாணவர்கள்



கணிதக் கற்றல் உபகரணங்கள் கொண்டு கணிதம் கற்ற கூசிரியர்கள்.

வந்தனர். அவருக்கு மிகுந்த மகிழ்ச்சி. இந்த எண்ணிக்கை வாரத்திற்கு வாரம் குறைந்து எவரும் வரவில்லை என்ற நிலை உருவான பிறகே இந்த முயற்சி கைவிடப்பட்டது.

கணிதக் கற்றல் பயிற்சி

அடுத்ததாக, ஒவ்வொரு வாரமும் கணித ஆசிரியர் களுக்குக் கணிதப் பயிற்சி வகுப்புகள் அருங் காட்சியகத் திலேயே நடத்துவார். அவர் திறன் அறிந்த அனைத்துப் பள்ளிகளும் தங்கள் ஆசிரியர் களைத் தவறாமல் அனுப்புவர். புதிதாக வேறு பள்ளிகள் வரவில்லை. அவர் விருப்பப்படி மதுரை மற்றும் பெங்களூர் ஆகிய ஊர்களுக்குச் சென்று பயிற்சி வகுப்புகள் நடத்தினோம். கடைவிரித்தும் கொள்வார் யாரும் இல்லை.



பெற்றோருக்கு கணிதக் கற்றல் வகுப்பு - 2000

சென்னை மாநகராட்சி பள்ளி ஆசிரியர்களுக்குப் பயிற்சி

அடுத்த முயற்சியாக, அவரே பக்கத்திலுள்ள பள்ளிகளுக்குச் சென்று ஆசிரியர்களை அழைப்பார். யாரும் வருவதில்லை. அருகிலுள்ள ஒரு மாநகராட்சிப் பள்ளிக்குச் சென்று திரும்ப திரும்ப அழைத்தபோது, “சார் நாங்கள் கல்வி அதிகாரி அனுமதியில்லாமல் வருஇயலாது” என்று சுற்றியுள்ளார்கள். நீங்கள் போவதற்கும் அவர்களைக் கேட்டுத்தான் செல்கிறீர்களா என்று கொப்பட்டுள்ளார். அப்பொழுதும் மனம் தளரவில்லை. உடனே மாநகராட்சி ஆணையரை நேரில் சென்று பார்த்தார்.

ஆசிரியர்கள் கணிதக் கற்றல் உபகரணங்களை உபயோகித்து கணிதம் கற்பிக்கும் முறையை விளக்கினார். அவரது அனுமதிபெற்று, சென்னையிலுள்ள அனைத்து மாநகராட்சி பள்ளிகளின் ஆசிரியர்களுக்கும் தொடர்ந்து அருங்காட்சியகத்தில் கணிதக்கற்றல் பயிற்சிகள் பல மாதங்கள் தொடர்ந்து தனியாக நடத்தினார். அதுமட்டுமல்ல, பெற்றோரையும் அழைத்து தனது பயிற்சிதனை வழங்கிடுவார்.

வியப்புட்டும் எண் கோலங்கள்



ஜியா பி.கே. ஸ்ரீனிவாஸன் ஆங்கிலம் மற்றும் கணிதம் ஆகியவற்றில் மட்டும் புலமை பெற்றவர் அல்ல. தமிழிலும் கணிதப் புலமை பெற்றவர் என்பதை, 'வியப்புட்டும் கோலங்கள்' என்ற தலைப்பில் மூன்று புத்தகங்களை எழுதி, இவற்றை உடனே வெளியிட என்று கட்டளை இட்டபிறகே அறிந்தேன். தனி வகை - 30, பொது வகை - 30,

கிறுக்கு வகை - 30 ஆகிய மூன்று புத்தகங்களையும் ஒளவைக் கலைக் கழக வெளியீடாக வெளியிட்டேன்.

புதிய கடிதங்கள் சேர்க்கை

இதற்கிடையில் இராமானுஜன் எழுதிய கடிதங்கள் அவரது ஜாதகம், பாஸ்போர்ட் நகல், இறந்த சாட்சிப் படிவம், குறிப்பாக இராமானுஜன் அவரது பேராசிரியர் கணபதி ஜியர் அவர்களுக்கு எழுதிய கடிதத்தையும் கண்டறிந்தார். அது மட்டுமல்ல தனது நண்பர் விநாயகராவ் அவர்களுக்கு எழுதிய கடிதங்களை அவரது மகளிடம் இருந்தே பெற்றார். கடிதங்கள் கரையான் அரித்து இருந்தன.



இராமானுஜன் அவர்களின் வாரிசின் வருகை
20.04.1999

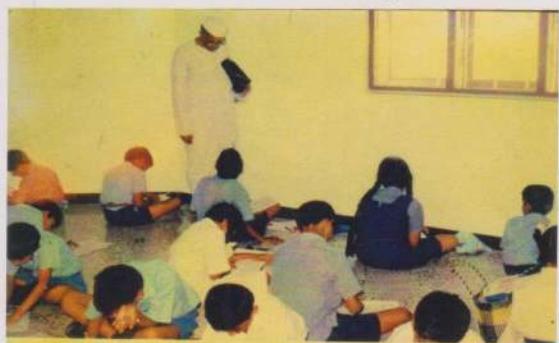
மற்றொரு நிறைவேறாக் கனவு

ஐயா பி.கே. ஸ்ரீனிவாசன் அவர்களின் இன்னொரு நிறைவேறாத கனவு ஒன்றும் உள்ளது. இராமானுஜனின் மனைவி ஜானகி அம்மாள் அவர்கள் வாழ்ந்த திருவல்லிக்கேணி வீட்டில் உள்ள, இராமானுஜனின் பாஸ் போர்ட், அவர் தேற்றங்களை எழுதி கண்டுபிடிக்க உதவிய எழுதுப்பலகை, அவர் வெந்நீரிட்டு குளித்த அலுமினியக்குடம், மிகக் குறிப்பாகப் பேராசிரியர் ரிச்சர்ட் அஸ்கி (Richard Askey) அமெரிக்காவின் புகழ்பெற்ற சிற்பி பால் கெராலுண்டு (Paul Granlund) அவர்களைக் கொண்டு

வடிவமைத்த கணிதமேதை இராமானுஜனின்
மார்பு அளவு வெண்கலச் சிலை ஆகிய
அனைத்தையும் அருங்காட்சியகத்தில் இராமானுஜன் குளிக்க உபயோகித்த
நிறுவ வேண்டும் என்றும் பெரிதும் இராமானுஜன் குளிக்க உபயோகித்த
ஆசைப்பட்டார். இதைப் படிக்கும் உங்களில் யாராவது, ஜானகி
அம்மாளின் வாரிசுகளை நேரில் சந்தித்து வேண்டுகோள்
விடுத்தால், ஐயா பி.கே. ஸ்ரீனிவாசன் அவர்களின் கனவும்
நிறைவேறும்.

கணித ஓலிம்பியாட்

ஐந்தாம் வகுப்பு மாணவர்களுக்கென ஒவ்வொரு ஆண்டும் கணித ஓலிம்பியாட் (Math Olympiad) இராமானுஜன் அருங்காட்சியகத்தில் நடத்துவார். ஏராளமான மாணவர்கள் கலந்து கொண்டதால் பக்கத்திலுள்ள திருமண மண்டபத்தில் போட்டிகள் நடத்தப்பட்டன. அவரது கேள்விகள் மிக உன்னதமாக இருக்கும். அதேபோல் செயின்ட்



ஐந்தாம் வகுப்பு மாணவர்களுக்கான கணித ஓலிம்பியாடு - 1998

கிறிஸ்டோபர்ஸ் கல்வியியல் கல்லூரியில் ஆண்டுதோறும் கணித விளக்கக்



தமிழ் எழுத்தாளர் சுஜாதாவின் வருகை

கண்காட்சி (Math Expo) நடத்துவார். அவர் கொடுக்கும் தலைப்புகள் ஒவ்வொன்றும் அற்புதமானவை மட்டுமல்ல, மாணவர்களை ஆழமாகச் சிந்திக்கத் தூண்டும். இம்மாபெரும் நூற்றாண்டு விழாவை நடத்தும் ஐயா பி.கே. ஸ்ரீனிவாசன் அவர்களின் வாரிசுகளுக்கு ஒர்

அன்பான வேண்டுகோள், கணித உலகத்திற்குப் பொக்கிழைமாக விளங்கும் ஜயா அவர்களின் ஐந்தாம் வகுப்பிற்கான ஒலிம்பியாட் வினாக்கள், கணித விளக்கக் காட் சிக்ஞக் கானத் தலைப்புகள் ஆகியவற்றின் தொகுப்புகளை இரு புத்தகங்களாக வெளியிடுக்கள்.



சகோதரி ஹெய்யாசின்தாலாவின் வருகை
22.04.1997

அருங்காட்சியகத்து விழாக்கள்

இராமானுஜன் பிறந்த நாளான டிசம்பர் 22ஆம் நாளையும், இறந்த நாளான ஏப்ரல் 26ஆம் நாளையும் மறவாமல் ஜயா பி.கே.ஸ்ரீனிவாசன் கொண்டாடுவார். கணிதத்தில் புலமை பெற்ற பல அறிஞர்களை வரவழைத்து இராமானுஜனின் சிறப்புக் குறித்துப்



பேராசிரியர் புருஸ் பெர்ணாட் அவர்கள் 14.02.1999இல் அருங்காட்சியகத்திற்கு வந்தபோது.

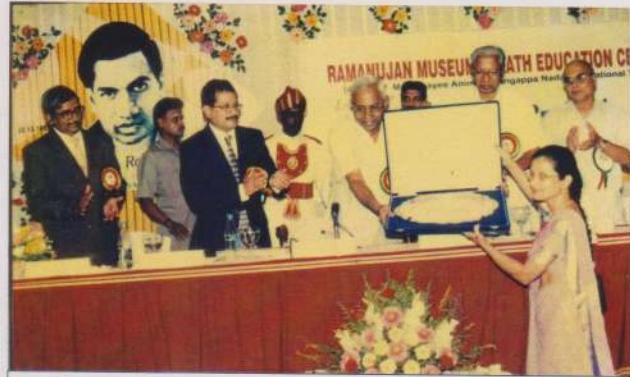
பேசச் சொல்வார். அவரது முயற்சியால் 11 நாடுகளில் இருந்து 36 கணித மேதைகளை இராமானுஜன் அருங்காட்சியகத்தைப் பார்வையிட அழைத்துள்ளார். குறிப்பாக இராமானுஜனின் 3,300 தேற்றங்களை எவ்வாறு நிருபித்திருப்பார் என்று 22 ஆண்டுகள் ஆய்வு செய்து, ஐந்து புத்தகங்களில் பதிவு செய்திட்ட இல்லினாய்ஸ் பல்கலைக்கழகத்தின் பேராசிரியர் புருஸ் சி பெர்ணாட் (Bruce C Berndt) அவர்களை அழைத்துப் பேச வைத்துள்ளார்.

வருகை தந்த வெளிநாட்டு கணித அறிஞர்களின் புகைப்படங்கள், தங்களது கருத்துகளைப் பதிவு செய்த குறிப்பேடு புத்தகம் ஆகியவற்றை ஜயா பி.கே. ஸ்ரீனிவாசன் அவர்களின் வாரிக்கள் கொடுத்திட்டால் அவற்றையும் காட்சிப்படுத்தலாம்.

புதிய கற்றல் உபகரணங்கள் அறிமுக விழா

2004ஆம் ஆண்டு சி.பி.எஸ்.இ. பள்ளிகளில் கண்டிப்பாகக் கணிதக் கற்றல் ஆய்வுக்கு அமைக்க வேண்டும் என்றும், பத்தாம் வகுப்பு பொதுத்தேர்வில் கணிதச் செயல்முறை தேர்வு நடத்தி 20% மதிப்பெண்கள் வழங்கவேண்டும் என்றும்

சி.பி.எஸ்.இ. பாடத்திட்டத்தில் கொண்டுவரப்பட்டது. கணித ஆய்வகத்தில் பயன்படுத்தும் வகையில் கற்றல் உபகரணங்களின் வடிவமைப்பை மாற்றி, மீண்டும் ஒரு அறிமுக விழா நடத்தலாம் என்று ஜியா பி.கே. ஸ்ரீனிவாசன் அவர்களிடம் கூறினேன். அதுமட்டுமல்லாது, இந்தியாவில் உள்ள அனைத்து சி.பி.எஸ்.இ. பள்ளிகளுக்கும் அழைப்பு அனுப்பி, இரண்டு நாள் கணிதக்கற்றல் பயிற்சி நடத்தலாம் என்றும் கூறினேன். ஆவன செய் என்று உத்தரவிட்டார்.



புதிய கணிதக்கற்றல் உபகரணங்கள் வெளியீட்டு விழா
14.10.2004

கணிதக் கற்றல் உபகரணங்களின் அறிமுக விழாவைச் சென்னை தாஜ் கன்னிமராவில் ஏற்பாடு செய்தேன். அன்றைய ஆளுநர் மேதகு பி.எஸ்.ராம்மோகன் ராவ் அவர்களை அழைத்தோம். ஆர்வமிகுதியால் இந்தியாவிலுள்ள சுமார் 3,000 சி.பி.எஸ்.இ. பள்ளிகளுக்கும் அழைப்பிதழ்கள் அனுப்பினேன். 80க்கும் மேற்பட்ட ஆசிரியர்கள் பல மாநிலங்களில் இருந்தும் கணிதக் கற்றல் பயிற்சி வகுப்புக்குப் பதிவு செய்திருந்தனர். விழாவிற்கு நான்கு நாட்கள் முன் ஜியா பி.கே.ஸ்ரீனிவாசன் தொலைபேசியில் என்னிடம் பேசினார். “எனக்கு உடம்புக்கு சுகமில்லை. ஆகையால், விழாவிற்கு வரமுடியாது. நீயே பார்த்துக்கொள்” என்று சொல்லி இணைப்பைத் துண்டித்துவிட்டார்.

எனக்கு என்ன செய்வது என்று தெரியவில்லை. உடனே அவர் வீட்டுக்குச் சென்றேன். உண்மையில் உடல் மிகவும் சோர்வுற்றுப் படுத்திருந்தார். ஜியா இன்னமும் நான்கு நாட்கள் உள்ளன, உடல் சுகம் பெற்று நீங்கள் வந்து கணிதக் கற்றல் பயிற்சி நடத்தினால்தான் சிறப்பாக இருக்கும் என்று பணிவன்புடன் கேட்டுக்கொண்டேன். என் உடம்பு எப்படி இருக்கிறது என்று எனக்குத்தானே தெரியும். நிச்சயம் என்னால் வரமுடியாது. நீ எத்தனை வகுப்புகளுக்கு என்னுடன் வந்துள்ளாய், ஆகவே நீயே நடத்து என்று ஒரு அனுகுண்டைத் தூக்கிப் போட்டார்.

ஜூயா நான் உங்களுடன் இருந்ததால் மட்டும் என்னால் எப்படி நடத்த முடியும் என்று தயக்கத்துடன் கேட்டேன். உன்னால் முடியும் என்ற நம்பிக்கை எனக்கு இருக்கிறது. என்னிடம் பயிற்சிப் பெற்ற சில கணித ஆசிரியர்களைத் துணைக்கு வைத்துக்கொள் என்று கூறிவிட்டு, திரும்பிப் படுத்துவிட்டார். அவரது அறிவுறுத்துதலின்படி, எனக்குத் துணை நிற்க அவரால் பயிற்சிப் பெற்ற சில ஆசிரியர்களைத் தொடர்பு கொண்டு கேட்டேன். எங்களுக்கு மாணவர்களுக்கு மட்டுமே பாடம் நடத்த முடியும், ஆசிரியர்களுக்கு அல்ல. அதுவும் பலமாநிலத்து ஆசிரியர்களுக்கு முடியவே முடியாது என்று அனைவரும் உறுதியாகக் கூறிவிட்டனர்.

வேறு வழியில்லாமல் என் பள்ளி தலைமை ஆசிரியர் திருமதி மீனா சுரேஷ் கணித ஆசிரியர் செல்வி சுபா, எங்கள் பள்ளி பெற்றோர் திருமதி ஜெயமதி ஜெயபாலன் மற்றும் திருமதி இனிமை பாலாஜி ஆகியோரை உடன் வைத்துக் கொண்டு இரண்டு நாள் பயிற்சிதனை நடத்தி முடித்தேன். எனக்குத் தெரியும் நான் பல தவறுகள் செய்தேன் என்று. ஆனால், அனைத்து ஆசிரியர்களும் வெகுவாக பாராட்டியது மட்டுமில்லாமல், நீங்கள் எங்கள் ஊருக்கு வந்து பயிற்சி கொடுத்திடல் வேண்டும் என்ற வேண்டுகோளை வைத்தனர்.

ஆசிரியர்கள் எழுதிக்கொடுத்த பின்னாட்டக் கருத்தினை ஜூயா பி.கே. ஸ்ரீனிவாசன் அவர்களிடம் காண்பித்தேன். படித்துவிட்டு, “அவர்கள்தான் கூப்பிடுகிறார்களே போய்விட்டு வா” என்று மீண்டும் கட்டளையிட்டார். அவரது கட்டளையை ஏற்று கொச்சி, பெங்களூர், வைதராபாத், பெல்லி, ஜெய்ப்பூர் ஆகிய ஊர்களுக்குப் பயணித்தோம். டில்லி செல்லும் முன் நமது நாட்டின் குடியரசுத் தலைவர் டாக்டர். அப்துல் கலாம் அவர்களுக்கு சில கற்றல் உபகரணங்களை அனுப்பி, அவற்றைத் தங்களிடம் நேரில் விளக்கிட அனுமதி கேட்டு கடிதம் எழுதினேன்.

டாக்டர். A. P. J. அப்துல் கலாம் பாராட்டு

நாங்கள் ஜெய்ப்பூரில் இருந்தபோது குடியரசுத் தலைவர் மாளிகையில் இருந்து அழைப்பு வந்தது. நாளை நீங்கள் மாலை 3:00 மணிக்கு மாளிகைக்கு வரமுடியுமா

என்று. மறுநாளும் கணிதக் கற்றல் பயிற்சி ஜெய்ப்பூரில் இருப்பதாக நான் சொன்னதும் இணைப்பு துண்டிக்கப்பட்டது.

நடந்தவற்றை ஐயா பி.கே. ஸ்ரீனிவாசன் அவர்களிடம் தொடர்பு கொண்டு என் மன வேதனையைச் சொன்னேன். கவலை கொள்ளாதே நாளை கூப்பிடுவார்கள் என்று தெய்வாக்குத் தந்தார். அதேபோல், மறுநாள் அழைப்பு வந்தது. ஐனவரி மாதம் 12 ஆம் நாள் 2005 ஆம் ஆண்டு, உற்சாகத்துடன் குடியரசுத் தலைவர் டாக்டர். அப்துல் கலாம் அவர்களை மாலை 3:00 மணிக்கு அவரது மாளிகையில் சந்தித்து சுமார் 20 நிமிடங்கள் கணிதக் கற்றல் உபகரணங்களை விளக்கிடும் வாய்ப்பு கிடைத்தது.



Dr. A. P. J. அப்துல் கலாம் அவர்களுக்கு கணிதக் கற்றல் உபகரணங்களை அவரது மாளிகையில் விளக்கிடல்

அனைத்து உபகரணங்களையும் தொட்டுப் பார்த்து, வடிவங்களை இணைத்துக் கணிதத் தேற்றங்கள் உருவாகுவதைக் கண்டு மனம் மகிழ்ந்தார். “நான் எப்பொழுதுமே கணிதப் பாடத்தில் 100க்கு 100 வாங்குவேன். இத்தகைய உபகரணங்களைக் கொடுத்து கற்றுத் தந்திருந்தால் 100க்கு 110 வாங்கியிருப்பேனே” என்று வியந்தார். “இந்தியா சென்னை, டில்லி போன்ற தலைநகரங்கள் மட்டுமல்ல, அனைத்துப் பகுதிகளுக்கும் இந்தக் கற்றல் முறையை எடுத்துக்கூறுவார்கள்” என்று கட்டளையிட்டார்.

இந்தியா முழுவதும் பயணம்

திரும்பி வந்து நடந்ததையும் புகைப்படங்களையும், டாக்டர். அப்துல்கலாம் கைப்பட எழுதிக் கொடுத்த வாழ்த்துச் செய்தியையும் காண்பித்து, அவர் இட்ட கட்டளையையும் எடுத்துச் சொன்னோம். முதல் முறையாகத் தன் மகிழ்ச்சியை வெளிப்படுத்திய ஐயா பி.கே.ஸ்ரீனிவாசன், அடுத்து எங்குச் செல்வது என்று திட்டமிடு என்று எனக்கு உத்தரவிட்டார்.

அவரின் உத்தரவை ஏற்று, கொல்கத்தா, ஜாம்செட்டபூர், மும்பை, பூனை, இந்தூர், போப்பால், வக்னோ, பாட்னா, புவனேஷ்வர், ஷஹதராபாத், விஜயவாடா, பெங்களூர், மைசூர், கெளவூராத்தி, ஜம்மு, ஜபல்பூர், ஜலந்தர், சண்டிகர், அமரிட்சர், அகமதாபாத், சூரத், டில்லி, டேராடேன், போர்ட் பிளேர் என்று இந்தியாவில் உள்ள பல ஊர்களுக்குச் சென்று கணிதக்கற்றல் உபகரணங்களின் பயனை ஆசிரியர்களுக்கு விளக்கினோம்.

Nels Lucy
Archit and Lucy
My first visit to India.

பாஜ் பி. கே.
4/1/06

தனது கடைசி நாட்கள்

நோய்வாய்ப்பட்டு வீட்டிலேயே இருப்பதை அறிந்து ஜயா பி.கே.ஸ்ரீனிவாசன் அவர்களைப் பார்த்து நலம் விசாரிக்க நானும் என் மனைவி மாலாவும் அவர் வீட்டுக்குச் சென்றோம். அவர் படுத்திருந்த அறையை நோட்டமிட்ட என் மனைவி “ஜயா, இது என்ன உங்கள் அறையில் இவர் படமும் சந்திரமோகனின் படமும் மட்டுமே உள்ளது?” என்று கேட்டாள். அதற்கு அவர் “ஆமாம், அவர்கள் இருவர்தான் என் கனவு நிறைவேற துணை நின்றவர்கள்” என்றார். எனக்கு மெய்சிலிர்த்தது.

ஜயா பி.கே.ஸ்ரீனிவாசன் அவர்களை இறுதியாக நானும் என் மனைவியும் மருத்துவமனைக்குச் சென்று பார்த்தோம். தீவிர சிகிச்சைப் பிரிவில் பல சாதனங்களை அவர் உடலில் இணைத்து இருப்பதைக் கண்டபோது, நெஞ்சை அடைத்தது. மெதுவாக அவர் அருகில் சென்று அவர் கையினைத் தொட்டேன். உடனே அவர் என் கையை இறுகப்பற்றினார். கண்களில் இருந்து நீர் வழிந்தது. எக்காரணத்தைக் கொண்டும் என் கனவான் 'இராமானுஜன் அருங்காட்சியகத்தையும் கணிதக் கற்றல் மையத்தையும்' கலைத்துவிடாதே என்று சொல்வதுபோல் இருந்தது. நான் அவர் கைதனை அழுத்தி, நிச்சயம் விடமாட்டேன், மேலும் சிறப்பித்திடுவேன் என்று உறுதி கூறினேன்.

இன்றைய அருங்காட்சியகம்

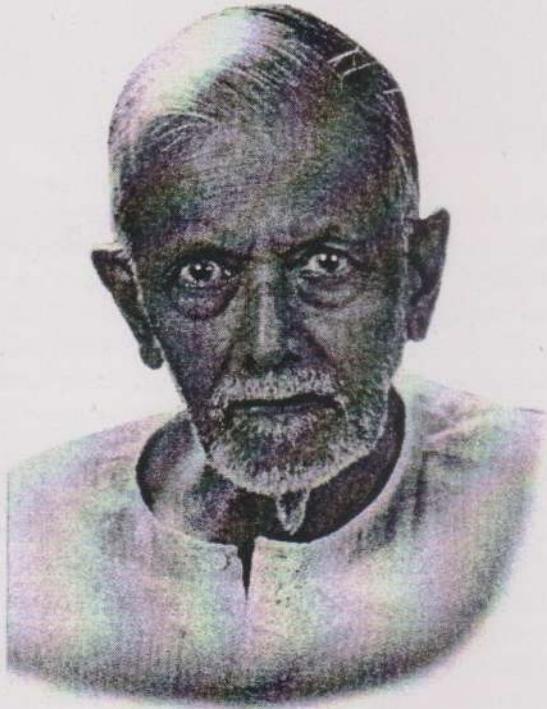
தற்சமயம் இராமானுஜன் அருங்காட்சியகத்தை விரிவுபடுத்தியுள்ளேன். இராமானுஜன் குறித்த காண்ணலிகளைப் பார்க்க தொலைக்காட்சி பெட்டியும், கணிதத் தேற்றங்களை விளக்கிடும் கணினிகளும் வைக்கப்பட்டுள்ளன. தேசிய ஆய்வு ஆவணக்காப்பகம் (National Archives of India) தலைமை நிர்வாக இயக்குநர் அருண் சின்கால் அவர்கள் அருங்காட்சியகத்தை நேரில் வந்து பார்த்து, சீரழிவு பாதுகாப்புதனை அனைத்து கடிதங்களுக்கும் செய்து கொடுத்துள்ளார்கள்.

ஓரு நாள் ஜயா பி.கே.ஸ்ரீனிவாசன் அவர்களின் கனவான பத்து ஏக்கர் நிலப்பரப்பில் இராமானுஜன் அருங்காட்சியக வளாகம் அமையும் என்ற நம்பிக்கை கொண்டுள்ளேன். ஓய்வாக இருக்கும்போது அருங்காட்சியகத்தைத் தவறாமல் வந்து பாருங்கள் என்ற அங்கு வேண்டுகோளுடன் எனது நன்றி கலந்த வணக்கங்கள்.

பாரதி பக்கம்:

காந்திய நறி கணிதமே குறி!

காந்திய நறி களில் உள்ள ம் பறிகொடுத்தவர்! கணிதமே குறியெனக் கொண்டு அக்கல்வியை அனைவரும் பெற்றிட வாழ்நாள் முழுதும் அயராது பாடுபட்டவர்! இவரே ஆசிரியச்



செம்மல் பா. கோ. ஸ்ரீநிவாஸன் அவர்கள்.

'தோன்றின் புகழூடு தோன்றுக என்ற திருக்குறளுக்கு உதாரண புருஷராக 4.11.1924ல் புகழுடன் தோன்றிய பெருந்தகை பா. கோ. ஸ்ரீநிவாஸன் கணிதத்தில் இளநிலைப்பட்டமும் கல்வியில் முதுநிலைப் பட்டமும் பெற்று சென்னை முத்தியால்பேட்டை உயர்நிலைப்பள்ளியில் ஆசிரியராகவும் பின் தலைமை ஆசிரியராகவும் பணிபுரிந்த அன்னாரின் சிறப்பு இயல்புகள் சிலவற்றை இக்கட்டுரை மூலம் சித்தரித்துக் காட்டுவதே நோக்கம்.

திறமான கணிதப் புலமை!

'திறமான புலமையெனில் வெளிநாட்டோர் அதை வணக்கம் செய்தல் வேண்டும்'.

என்று தமிழ் என்ற தலைப்பிலான பாடலில் பாரதியார் திறமான புலமைக்கு இலக்கணம் வகுத்தார்! இந்த இலக்கணத்துக்கு உதாரணமாக நாம் பா. கோ. ஸ்ரீநிவாஸன் அவர்களை சுட்டிக்காட்டலாம் பெருமையுடன்!

அ மெரி காவின் .: புலபிரைட் எக்ஸ்சேன்ஞ் அமைப்பு அந்நாட்டில் கணித ஆசிரியராகப் பணியாற்ற தகுதியானவர் ஒருவரைத் தேர்ந்தெடுக்க தேர்வு ஒன்றை நடத்தியது. அதில் கமார் நூறு கணித ஆசிரியர்களுக்கு மேல் கலந்து கொண்டனர். இப்படி கலந்து கொண்டவர்களில் நம் பா. கோ. ஸ்ரீநிவாஸன் அவர்களும் ஒருவர்.

வெளிநாட்டுக்குப் போக தேர்வு இல்லையா? எல்லா ஆசிரியர்களும் கோட்டு குட்டுடன் டிப்டாப்பாக வந்திருந்தனர். நம் பா. கோ. ஸ்ரீநிவாஸன் மட்டும் தமிழ் மரபுப்படி எனிய முறையில் வேட்டி சட்டை அங்கவஸ்திரம் அணிந்து வந்திருந்தார். கோட்டு குட்டுடன் மிடுக்காக வந்திருந்தவர்கள் இவரை ஏளமாகப் பார்த்தனர். ஒரு சிலர் என்ன இப்படி கட்டுப்பெட்டியாக இருக்கிறாரே, பிழைக்கத் தெரியாதவர், ஐயோ பாவம்! என்று கூட என்னினர்.

நான் ஒரு இந்தியன். நம்நாட்டினர்க்கு கட்டுப்படியாகும் எனிய உடையே சிறந்தது. காந்தியடிகள் போதித்த இந்த பாடத்தை நன்குணர்ந்திட்ட பா.கோ. ஸ்ரீநிவாஸன் அவர்கள் மற்றவர்களின் கேலிப் பார்வையையோ, குத்தல் முனு முனுப்பையோ சற்றும் சட்டை செய்யாமல் நிமர்ந்த நெஞ்சினராக இருந்ததுடன் தேர்விலும் தம் கணிதப் புலமையை முழுதும் வெளிப்படுத்தினார்!

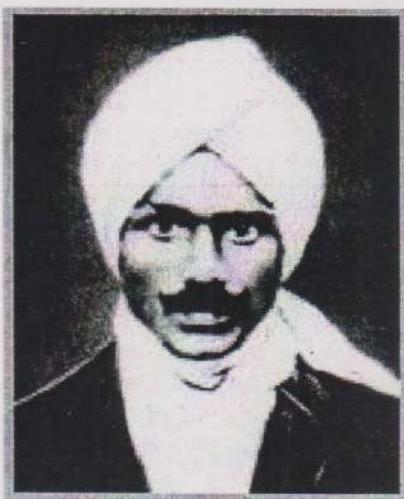
சொல்ல வேண்டுமா? .: புலபிரைட் எக்ஸ்சேன்ஞ் அமைப்பாளர் பா. கோ. ஸ்ரீநிவாஸனையே தேர்ந்தெடுத்தனர். கோட்டு குட்டு போட்டவர்கள் வந்த பெருமிதத்தோடு சரி. தேர்வில் நம் ஆசிரியருக்கு நிகராக ஒரு வரும் விளங்கவில்லை! நிற்க.

அமெரிக்க அமைப்பின் மூலம் கணித ஆசிரியராக தேர்வு செய்யப்பட்ட பா.கோ. ஸ்ரீநிவாஸன் அந்நாட்டுப் பள்ளியில் சிறப்பாகப் பணியாற்றினார். பின் நெஞ்ஜீரியாவில் அரசாங்க மேலதிகாரியாகவும் மேல் விரிவுரையாளராகவும் திறம்பட பணியாற்றினார்.

கணித மேதை இராமானுஜன் (1887-1920)

'கற்றாரைக் கற்றாரே காமுறுவர் என்கிறது ஒள வையார் அருளிச் செய்த முதுரை. இக்கற்றுப்படி பா.கோ. ஸ்ரீநிவாஸன் அவர்கள் கணித மேதை இராமானுஜனை இனங்கண்டு அவர்பால் அளவற்ற மரியாதையும் காதலும் கொண்டிருந்ததில் வியப்பில்லை

இவர் பல முறை இராமானுஜன் வாழ்ந்த கும்பகோணம் சென்று தெருத் தெருவாக வீடு வீடாக அலைந்து பலரை சந்தித்து இராமானுஜன் பற்றிய பல அரிய விஷயங்களையும் அவரின் கடிதங்கள் சிலவற்றையும் பெற்று அதை ஒரு



நா லா க
வெளியிட்டார்.

இவரது செய்தை கிவரைப் போல் பட்டி தொட்டிகளில் அலைந்து அரிய பல செய்திகளையும் தமிழ்ச் சுவடிகளையும் கண்டெடுத்து அவற்றையெல்லாம் வருங்கால

சமுதாயம் படித்துப் பயன்டைய அரிய தொண்டாற்றிய மகா மகோபாத்தியாய டாக்டர் உ.வே. சாமிநாத ஜெயரவர்களின் தொண்டினை நினைப்புட்டுகிறதன்றோ! ஜெயரவர்களை ‘தமிழ்த்தாத்தா’ என்று அன்புடன் அழைத்தது போல் நம் ஆசிரியர் பா.கோ. ஸ்ரீநிவாஸன் அவர்களை ‘கணிதத்தாத்தா’ என்று கணிவுடன் அழைத்து மகிழலாமன்றோ! நிற்க.

இராமானுஜன் நினைவு மலர்

தாம் அரிதின் சேகரித்த கடிதங்களையும், செய்திகளையும் சுவைபடத் தொகுத்து.

‘இராமானுஜன் கடிதங்களும் நினைவுச் செய்திகளும்’ என்ற தலைப்பில் நினைவு மலராக வெளியிட்டார் பா.கே. ஸ்ரீநிவாஸன் முத்தியால்பேட்டை உயர்நிலைப்பள்ளி எண் நண்பர் கழகப் பழைய மாணவர் குழுவினர் ஆசிரியர் தம் இப்பணியில் பங்கு கொண்டு சிறப்பாகப் பணியாற்றியது இங்கு குறிப்பிடத்தக்கது.

இராமானுஜன் நினைவு மலர் வெளியீடு 11-5-1968ந் தேதி சரிக்கிழமை சென்னை கோகலே ஹாவில் கோலாகலமாக நடைபெற்றது!

நூலை வெளியிட்டவர் பாரத ரத்னா முதறிஞர் ராஜாஜி அவர்கள் முதல் பிரதியை ராஜாஜியிடமிருந்து பெற்றவர் யார் தெரியுமா? அப்போது ஜீவியவந்தராக இருந்த கணித மேதை இராமானுஜனின் துணைவியார் ஜானகி அம்மாள் அவர்கள்! ‘கற்றாரைக் கற்றாரே காழுறுவர்’ என்பதற்கிணங்க கணித மேதை இராமானுஜன்

நினைவை எப்படி மிக அழகாக தமிழகமே போற்றும்படி செய்து விட்டார் ஆசிரியப் பெருந்தகை பா.கோ. ஸ்ரீநிவாஸன் அவர்கள்!

இராமானுஜன் மியூஸியம்

சென்னை ராய்புரத்தில் இயங்கி வரும் அவ்வை கலைக்கழகத்தின் ஒரு பகுதியாக செயல்பட்டு வரும் இராமானுஜன் மியூஸியத்தை உருவாக்கிய வரும் நம் ஆசிரியரே, அவர்களுவதை இங்கு காண்போம்.

எனக்கு கணிதத்தின் மீது சிறவயதிலிருந்தே தீராத ஆர்வம். அதனால் கணித மேதை இராமானுஜன்பால் மிகுந்த பற்று உண்டு. 1962ம் ஆண்டில் இருந்தே அவர் சம்பந்தப்பட்ட பொருட்களை மிகுந்த சிரமத்துக்கிடையில் சேகரித்தேன்.

இந்தியாவைப் பொறுத்த வரையில் இராமானுஜன் ஒரு கணித மேதை என்ற பட்டத்தோடு விட்டு விட்டார்கள். அன்னாரின் கணிதப் புதிர்கள் சில இன்னும் தீர்க்கப்படாமல் உள்ளன. பல கணித சூத்திரங்கள் இன்னும் சரியாக மக்களுக்கு போய்ச் சேரவில்லை. ஆனால் வெளிநாட்டு அறிஞர் அவரைப்பற்றியும் அவரின் கணித சூத்திரங்கள் பற்றியும் புத்தகமாகவே எழுதிவிட்டார்கள்.

நம் நாட்டில் பிறந்த இந்த மேதையின் புகழை நம் மக்களுக்கு அதிக அளவில் உணர்த்த வேண்டும். அன்னாரின் எளிமையான கணித புதிர்கள் எல்லோரையும் சென்று அடைய வேண்டும் என்று நினைத்து இந்த மியூஸியத்தைத் தொடங்கி நிர்வகித்து வருகிறேன்.

1993ம் ஆண்டு முன்னாள் மத்திய அமைச்சர் சி. கப்பிரமணியம் அவர்கள் இந்த மியூஸியத்தைத் திறந்து வைத்தார். இந்த மியூஸியம் அமைப்பதற்கு அவ்வை கலைக்கழக டிரஸ்டி போஸ் அவர்கள் பெறும் உதவி புரிந்திருக்கிறார்.

வெளிநாடுகளில் கணிதத்துறைக்கு இருக்கும் மதிப்பு நம் நாட்டில் இல்லை. சௌாலில் ஜந்தாம் வகுப்பு மாணவர்களுக்கு கூட ஆண்டுதோறும் கணிதப்போட்டி நடத்துகிறார்கள். நம் நாட்டிலும் அது போலவே போட்டிகள் நடத்தி மாணவர்களின் கணிதத்திறமையை மேன்மேலும் ஊக்குவிக்க வேண்டும்.

எண்ணும் எழுத்தும்

ஒளவையார் நம் ஆத்திருக்கியில் ‘எண்ணெழுத்திகழேல்’ என்றுள்ளார்.

எண்.- (இலக்கியமாகிய) கணக்கையும்
எழுத்து - இலக்கணத்தையும்
இகழேல் - (கற்காமல்) இகழ்ந்து தள்ளாதே.

இது போல் கொன்றை வேந்தனில் ஒளவையார் 'எண்ணும் எழுத்தும் கண் எனத் தகும்' என்றுள்ளார் இதன் பொருள்.

எண்ணும் - கணக்கும்
எழுத்தும் - இலக்கணமும்

கண் எனத்தகும் - ஒருவனுக்கு இரண்டு கணகள் என்று சொல்லத்தகும்.

என்னென்ப ஏனை எழுத்தென்ப இவ்விரண்டும் கண் னென்ப வாழும் உயிர்க்கு என்கிறார் 'திருவள்ளுவர்', இப்படி தமிழ் நல்லிலக்கியங்கள் போற்றியுள்ள எண்ணுக்கும் எழுத்துக்கும் தன்னிலம் கருதாது இறுதி முச்சு வரை பாடுபட்ட வள்ளல் பா.கோ. ஸ்ரீநிவாஸன் என்று உவகையுடன் உரத்த குரவில் உலகறியச் சொல்லலாம்!

கணிதமே கண்ணாயினார்!

தம்மை ஒரு கணித மேதை என்றோ பேராசிரியர் என்றோ யாரும் அழைக்க வேண்டாம் என்று அடிக்கடி அன்புடன் வேண்டுவார் பா.கோ. ஸ்ரீநிவாஸன் தம்மை ஒரு கணித ஆசிரியனாகவே பார்த்து அப்படியே அழைக்கும்படி கேட்டுக் கொள்வார். என்னே, கருமமே இல்லை, இல்லை கணிதமே கண்ணாயினராக வாழ்த்த இவர் தம் எளிமை! நிற்க.

பா.கோ. ஸ்ரீநிவாஸன் அவர்களின் நான்காவது நினைவுதினம் (20-6-2005ந் தேதி அவர் பூதவுடல் நீத்தார்) சென்னை தரமணியில் உள்ள கணித அறிவியல் மையத்தில் கடந்த 20-6-2009ந் தேதி சனிக்கிழமை அனுசரிக்கப்பட்டது. இதற்கான ஏற்பாடுகளை சிறப்பாகச் செய்த ஆசிரியரின் கணித்ட குமாரர் கண்ணன் P. ஸ்ரீநிவாஸனின் பணி பாராட்டுக்குரியது! நிற்க.

இந்த நினைவு தின விழாவில் சிறப்பு விருந்தினராக கலந்து கொண்டு உரையாற்றினார். ஜஜா பேராசிரியர் P. அச்சுதன் அவர்கள் அவர் பேசியதிலிருந்து சில முக்கியபகுதிகள் வருமாறு.

'அவருக்கும் எனக்கும் 40 ஆண்டு கால நட்பு இருந்தது. அவர் ஒரு சிறந்த மேதை. அவர் கணி த் த து ற க் கு ஆ ற் றி ய ப னி எண்ணிலடங்காதன. அவர் விட்ட பணிகளை நாம் முனைப்புடன் தொடர முயல வேண்டும்.

அமெரிக்க அதிபர் ஓபாமா கூற்று.

'அ மெரி க் கர் க ஞு க் கு கணி த ம் கட்டாயமாக கற்பிக்கப்பட வேண்டும்.

இல்லாவிட்டால் இந்தியர்களும், சீனர்களும் நம்மை முந்தி விடுவர்.

கணிதம் அற்புதமானது. இசையோடு கலந்தது. உலகத்தில் உள்ள அனைத்திலும் கணிதத்தின் சாராம்சம் உள்ளது.

கணிதத்தை ஈடுபாட்டுடன் கற்க வேண்டும். அதைப் பிறருக்கு எடுத்துச் சொல்லும்போது அன்புடன் சொல்ல வேண்டும். நீங்கள் அன்பு கூற்று எந்த ஒரு செயலில் ஈடுபட்டாலும் அதில் நிச்சயம் வெற்றியை ஈட்டமுடியும். பா.கே. ஸ்ரீநிவாஸன் அன்பு என்றும் ஆயுதத்தைப் பயன்படுத்தியே சாதனை படைத்தார்.

எழுதிய நூல்கள் : துமிழில்

வியப்பூட்டும் எண் கோலங்கள்

-தனிவகை

-;- பொதுவகை

-'- சிறப்பு வகை

விளையாட்டு கணக்கு

வாய்ப்பாடும் வாய்க்கணக்கும்

கணித குறியீடுகளின் குட்டி வரலாறு

கானவழி வாய்ப்பாடு

கணிந்த வாழ்வினோரைக் களிப்பூட்டும் கணக்கு தமிழில் மட்டுமல்லாது ஆங்கிலத்திலும் 16 நூல்கள் எழுதியுள்ளார் பா.கே. ஸ்ரீ அவர்கள்.

எங்கும் கணக்கு

கணிந்த வாழ்வினோரைக் களிப்பூட்டும் கணக்கு (Math Fun for Senior Citizens) என்ற நூலின் முகவுரையில் ஆசிரியர் கூறுகிறார் :-

'எங்கும் கணக்கு, எல்லாம் கணக்கு, எதிலும் கணக்கு என கணக்கைக் கடவுளாக கைதொழும் காலமல்லவா இது. முதியோர்களும் சிறார்களும் மகிழ்வாம் வாருங்கள்'.

விகடகவி எண்கள்

'கணிந்த வாழ்வினோரைக் களிப்பூட்டும் கணக்கு' என்ற ஆசிரியரின் நூலின் முதல் அத்தியாயம் 'விகடகவி எண்கள்' என்ற தலைப்பிலானது. அதிலிருந்து சுவையான பகுதிகள் வருமாறு.

'விகடகவி' என்ற வார்த்தையை திருப்பிப் படியுங்கள். எப்படி அமையுது? 'விகடகவி'யேதான் இல்லையா?

இதே மாதரி எண்களிலே உண்டு. எடுத்த எடுப்பிலே சொல்லனும்னா 22 : 555 : 7777 என ஒரே இலக்கத்தில் அமைத்து விடலாம். இதில் எந்த

வியப்பும் இல்லை. இரட்டைப்படை எண்ணிக்கையில் அமையும் ஒரே இயக்கத்தில் ஆன பல்லிலக்க எண்ணை எடுத்துக் கொண்டு நடுவில் ஏதோ ஒரு இலக்கத்தைப் போட வேண்டியதுதான். 'விகடகவி என்' கிடைத்துவிடும். இதோ பாருங்கள் கிடைத்துவிடுகின்றன.

232, 77577, 888 6888..... இவைகளைக் கொண்டும் இதே அமைப்பில் இலக்கப்பகுதியைக் கொண்ட எண்ணைக் கொண்டும் கீழ்க்கண்டவாறு அமைத்து விடலாம். 7675767, 889868988; சரி, ஏதோ ஒரு பல்லிலக்க எண்ணை எடுத்துக் கொள்ளுங்கள். அதையே திருப்பி எழுதக் கிடைக்கும் எண்ணை பக்கத்தில் எழுதி விடுங்கள். கிடைத்துவிடுகிறது 'விகடகவி எண்கள்'.

426	426624
5871	58711785

ஒன்றாமிட இலக்கத்தைவிட்டு விட்டு மீதம் உள்ள இலக்கணங்களால் ஆன எண்ணை திருப்பி எழுதினால் கூட கிடைத்துவிடும்.

426	426624	42624
5871	58711785	5871785

எப்படி இந்த சுவை சாம்பிள் 'எண்ணி எண்ணி பார்த்திடிலோர் எண்ணமில்லை இந்த எண்களின் குவக்கே' என்று மகிழ்வுடன் பாடத் தோன்றுகிறதன்றோ! எளியேனை இக்கட்டுரையை எழுத உதவிவும் உத்சாகமும் தந்தவர் ஆசிரியர் அருமந்த புதல்வர் கண்ணன் P. ஸ்ரீநிவாஸன் அவர்கள் ஆசிரியரின் பரந்த உள்ளத்தைக் காட்டும் படியாக உள்ள ஒரு உருக்கமான செய்தியை இங்கு பதிவு செய்கிறேன்.

பா.கோ. ஸ்ரீநிவாஸன் அவர்கள் இல்லத்துக்கு ஒரு அம்மாள் பால் கொடுத்து வந்தார். நேரந்தவராமல் காலை ஜந்தரை மணியளவில் அவர் பால் கொடுப்பது வழக்கம். அந்த அம்மாளின் கடமை உணர்ச்சி காலை நான்கு மணிக்கெல்லாம் எழுந்து தம் கடமைகளைத் துவக்கி விடும். ஆசிரியரை கவர்ந்ததில் வியப்பில்லை. அந்த ஆண்டு குடியரசு தினத்தன்று அந்த பால்கார அம்மாள் தலைமையில் தம் இல்லத்தில் தேசிய கொடியை ஏற்ற வேண்டும் என்று அவர் தீர்மானித்தார். ஆசிரியரின் அன்புக் கட்டளையை சிரமேற் கொண்டு அந்த பால்கார அம்மாள் குறித்த நேரத்துக்கு வந்து தேசிய கொடியேற்று வைபவத்துக்குத் தலைமை தாங்கி அழகாக நடத்திக் கொடுத்தாராம். இப்படி பாமரரையும் மிகுந்த போற்றுதலுக்கு உள்ளாக்கிய ஆசிரியரின் பரந்த உள்ளத்துக்கு ஈடு இணை காட்ட

இயலுமா? நிற்க.

தில்லை கங்காநகர்

ஆசிரியர் பா.கோ. ஸ்ரீநிவாஸன் அவர்கள் வாழ்ந்த இல்லம் சென்னை தில்லை கங்காநகரில் உள்ளது. அவருடைய மனைவி அலர்மேலு மங்கை, புதல்வர் கண்ணன் P. ஸ்ரீநிவாஸன் மற்றும் குடும்பத்தினர் இங்குதான் தற்சமயம் வசித்து வருகின்றனர்.

இங்கு மாடியில் ஆசிரியர் எழுதிய நூல்கள், அவர் படித்த பல நூல்கள், அரிய புகைப்படங்கள் எல்லாம் புனிதமாகப் போற்றி பாதுகாக்கப்பட்டு வருகின்றன. ஆர்வலர்கள் இவைகளைக் கண்டு மிகுந்த பயன் பெறலாம். முகவரி வருமாறு அலர் ஸ்ரீ பப்ளிகேஷன்ஸ், நெ. 20, புதிய எண். 14, 25-வது தெரு, தில்லை கங்காநகர், சென்னை-600 061.



ஜயனவன் பருமையை இச்சிறுகட்டுரை மூலம் சிறிதளவு வேக காட்ட முயன்றிருக்கிறேன். பா.கோ. ஸ்ரீநிவாஸன் அவர்களின் விழாவினை சீரிய முறையில் கொண்டாட வருவதுடன் அவர் கண்ணெனப் போற்றி வந்த கணிதத்துறைக்கு ஒவ்வொரு வரும் தங்களாலான சீரிய பங்கினைச் செலுத்த முன்வரவேண்டும் என பணிவுடன் வேண்டிக்கட்டுரையினை நிறைவு செய்கிறேன்.

பா.கோ. ஸ்ரீநிவாஸன் புகழ் வாழ்க்!
கணிதம் வெல்க!

- வி.ச. வாகதேவன் 3.6.09

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● கொடைக்கானலில் அடர்ந்த வனம், கடுங்குளிர் நிலவுவதால் அரிய வகை பறவைகளான கொண்டை கழுகு, கூளக்கிடா போன்றவை, இனப் பெருக்கத்திற்காக மே, ஜான் மாதங்களில் வந்து செல்வது வழக்கம்.

சமீபகாலமாக இந்த வகை பறவைகளின் வரத்து குறையத் துவங்கியுள்ளது. வனப்பகுதியை யொட்டி பெருகி வரும் பொதுமக்களின் ஆக்கிரமிப்பு, குறைந்து வரும் மரங்களின் எண்ணிக்கை ஆகிய வற்றால் இனப் பெருக்கத்திற்காக வரும் கடல் பறவைகளின் எண்ணிக்கை, குறைந்து வருவதாலும் இந்த இனம் அழிய வாய்ப்புள்ளது என்று நிபுணர்கள் கூறுகின்றனர்.

திரு P.K.சீனிவாசன்- சில நினைவுகள்

ச.கோபாலன்

1974ஆம் ஆண்டு நவம்பர் மாதம் 4ஆம் நாள். மாம்பலம் இரயில்வே ஸ்டேஷன் பாலத்தில் திரு சீனிவாசனைச் சந்தித்தேன். “இன்று என்ன விசேஷம்” என்று நான் வினவ, அவர் “இன்று எனது ஜம்பத்தொன்றாம் பிறந்த நாள்” என்றார். “என்ன செய்தீர்கள்?” என்று கேட்டேன். “காலையில் எழுந்தவுடன் நீராடி விட்டுக் கால்நடையாகத் திருவல்லிக்கேணி சென்று பார்த்தசாரதி ஸ்வாமியைத் தரிசித்தேன்” என்றார். அதுதான் பி.கே. சீனிவாசனின் தனித்தன்மை.

Cost and Works Accounts வகுப்பில் படித்துக்கொண்டிருந்த திரு பாலகிருஷ்ணன் மூலமாக முதன் முதலில் திரு சீனிவாசனைப் பற்றிக் கேள்வியுற்றேன். வித்யார்த்தி பரிசுத்தின் அமைப்பாளராக இருந்த கால கட்டம் அது. மாணவர்கள், ஆசிரியர்களைச் சந்திப்பதே எனது பணியாக இருந்ததால், மேற்கு மாம்பலத்தில் ஜுவிலி தெருவில் இருந்த அவரது இல்லத்தில் எங்களது முதல் சந்திப்பு நிகழ்ந்தது. மாடிப்படிக்கட்டுகளில் அமர்ந்து கொண்டு செய்தித்தானில் மூஷ்கியிருந்த அவர் சிறிது நேரமே என்னுடன் உரையாடினார். பிறகு மெல்ல மெல்ல அவருடன் பழக, அவரது பன்முகப்பட்ட திறமை தெரிய வந்தது.

1963ஆம் ஆண்டு கணிதமேதை இராமானுஜன் நினைவாக தபால்தலை ஒன்று வெளியிடப்பட்டது. சீனிவாசன் பணியாற்றி வந்த முத்தியாலுபேட்டை உயர்நிலைப் பள்ளியில், என் நண்பர் கழகம் (Number Friends Society) என்ற ஒன்றினைத் தோற்றுவித்து, அதன் உறுப்பினர்கள் சீனிவாசன் தலைமையில் இராமானுஜத்தைப் போற்றுகின்ற அட்டை களைக் கையில் ஏந்தி தம்புச் செட்டித் தெருவில் இருந்து அண்ணா சாலையில் உள்ள தலைமை அஞ்சல் அலுவலகத்தை

நோக்கி அணிவகுத்து வந்து தபால் தலை வெளியிட்டு நிகழ்ச்சியில் கலந்துகொண்டனர். அன்றாடம் காணப்படும் அரசியல் மற்றும் கேளிக்கை ஊர்வலங் களுக்கு மாறாக இது அமைந்திருந்தது பொதுமக்களை வியப்பில் ஆழ்த்தியது.

வியக்கத்தக்க சாதனை புரிந்து அல்ப ஆயுளில் அமரராகிவிட்ட கணிதமேதை இராமானுஜத்தின் பிறப்பு, வளர்ப்பு, அயல் நாட்டிற்கு அவர் பயணமாகிய வரலாறு ஆகியவை குறித்து அரும்பாடுபட்டு ஆவணங்கள் பலவற்றை திரு சீனிவாசன் சேகரித்தார். கும்பகோணத்தில் அவர் வளர்ந்த வீடு. அவரது சகோதரர், திருவல்லிக்கேணி யில் வசித்து வந்த அவரது மனைவி, இராமானுஜத்தின் கணித ஆற்றல் உலகம் தெரிந்து கொள்வதற்குக் காரணமாக இருந்தவர்கள், இராமானுஜன் இடைவிடாது பயன்படுத்தி வந்த சிலேட்டுப்பலகை ஆகிய இராமானுஜன் சம்பந்தப்பட்ட அனைத்து நபர்கள், கருவிகள் ஆகிய அனைத்தையும் குறிப்பெடுத்து. புகைப்படம் எடுத்து இராமானுஜன் நினைவாக ஒரு நினைவு மலர் வெளியிட்டார். இராமானுஜத்தின் கடிதங்கள் அவரது கையெழுத்திலேயே அம்மலரில் இடம் பெற்றிருந்தன. மலர் முழுவதும் ஆர்ட் பேப்பரில் கெட்டியான பைண்டிங்குடன் வெளியிடப்பட்டது. அதே போல், Ramanujan - An Inspiration என்ற தலைப்பில் அவரது அடியொட்டி கல்வியாளர்களும், மாணவர்களும் எழுதிய மற்றொரு மலரும் வெளி வந்தது. 1960-70 காலகட்டத்தில் இப்படிப்பட்ட ஒரு முயற்சியை ஒரு பள்ளிக்கூட ஆசிரியர் மேற்கொண்டு அதில் வெற்றி பெற்றார் என்பது சாதாரண விஷயமல்ல. ஏனென்றால், அந்நாள்களில் இன்று காணப்படுவது போல் பணப்புழக்கம் அதிகம் கிடையாது. நல்லெண்ணம் கொண்ட சில தனி நபர்களைத் தவிர பெரிய நிறுவனங்கள்



எதுவும் சீனிவாசனுக்கு உதவியதாகத் தெரியவில்லை. ‘மெய் வருத்தம் பாரார், பசி நோக்கார், கண் துஞ்சார் கருமமே கண்ணாயினார்’ என்ற பாடலுக்கு ஒட்டு மொத்த எடுத்துக்காட்டாக விளங்கி அவ்விரு மலர்களையும் பொது மக்க ஞக்கு வழங்கினார் சீனிவாசன். அவர் எதிர் பார்த்ததுபோல் நூலகங்களும். கல்விச்சாலை களும் அந்த மலரை வாங்கிப் பயணடையாதது அவருக்கு வருத்தத்தையே அளித்தது.

ஒரு முறை பம்பாய் சென்றிருந்த நான் பார்த்தீய வித்யா பவனின் தலைமைப் பொறுப்பில் இருந்த திரு இராமகிருஷ்ணனை முதன் முறையாக நேரில் சந்தித்து இந்த மலரைக் காண்பித்தேன். மலரைப் புரட்டத்தொடங்கிய அவர் ஏறத்தாழ 30-40 நிமிடங்கள் அதில் ஆழ்ந்துபோனார். அதன் பிறகே என்னை ஏற்றுத்துப்பார்த்து மற்ற விஷயங்கள் பற்றிப் பேசலானார்.

கல்வி பற்றிய அவரது அனுகுமுறையே சற்று வித்தியாசமானது. அவ்வப்போது என்னுடன் உரையாடும்போது சமுதாயத்தில் மாணவன் எதிர்நோக்கும் எந்தச் சூழ்நிலையும், நிகழ்ச்சியும் அவனுக்குக் கல்வியறிவை ஊட்ட வல்லதாக அமையவேண்டும் என வற்புறுத்து வார். எடுத்துக்காட்டாக, நூற்றுக்கணக்கில் (அந்தக் கால அளவில்) தீபாவளிப்பட்டாக வாங்குகிறோம். ஒவ்வொரு பெட்டியின் அடிப்பகுதியிலும் பச்சை மத்தாப்பு ஏன் பச்சையாக எரிகிறது? கம்பி மத்தாப்பு ஏன் பூப்புவாக மலருகிறது? அனுகுண்டு ஏன் பெரிய சத்தத்துடன் வெடிக்கிறது? ஏரோப்ளேஸ் ஏன் மேலே செல்கிறது? என்பது போன்ற விவரங்களை அச்சிடவேண்டும். அனைவரும் படிக்காவிட்டாலும், அக்கறையுள்ள சிலரேனும் படித்து விஷயத்தைப் புரிந்துகொள்வார்கள். கல்வி என்பது நான்கு கவர்களுக்கு இடையிலே அளிக்கப்படுகின்ற விஷயமல்ல. மாணவனது ஆர்வத்தைத் தூண்டி சுற்றுப்புற சூழ்நிலை களை இடையறாது கவனித்து அவன் கற்குமாறு செய்வதே உண்மையான கல்விப் பணி என்பதை அவர் வலியுறுத்துவார்.

முத்தியால்பேட்டை உயர்நிலைப் பள்ளியின் தலைமை ஆசிரியராக அவர் பொறுப்பேற்றார். ஒருமுறை அவரைச் சந்தித்தபோது தலைமை ஆசிரியர் என்கின்ற முறையில் மாணவர்களிடையே ஒழுங்கு, கட்டுப்பாடு ஆகியவற்றை எப்படி வளர்க்கிற்கள் என்று கேட்டேன். சிரித்தபடியே அவர் கூறினார், “மிகவும் சுலபம். நான் பொறுப்பேற்றவுடன் மாணவர்களைப் பார்த்து நீங்கள் அனைவரும் நல்லவர்களே, எனவே உங்கள் நடத்தையை மெச்சி உங்கள் அனைவருக்கும் 100 மதிப்பெண்கள் வழங்கியுள்ளேன். அந்த 100 மதிப்பெண்களைச் சிறிது கூடக் குறையாமல் பாதுகாத்துக் கொள்வது என்பது உங்கள் கையில் உள்ளது. நீங்கள் நேரம் தவறி வந்தாலோ, தகாத முறையில் நடந்து கொண்டாலோ, வீட்டுப்பாடங்களைச் சரிவரச் செய்யாமல் இருந்தாலோ இதிலிருந்து மதிப்பெண்கள் கழிக்கப்படும். எனவே, 100 மதிப்பெண்களை அப்படியே பாதுகாத்துக் கொள்ளும் விதத்தில் உங்களது அன்றாட நடவடிக்கைகளில் கவனத்துடன் இருக்க வேண்டும் என்று கூறினேன். எல்லாம் ஒழுங்காக நடந்து கொண்டிருக்கிறது” என்றார். சீனிவாசனின் இந்த தனித்த தன்மையை மீண்டும் ஒருமுறை பார்க்க நேரிட்டது.

முத்தியால்பேட்டை உயர்நிலைப் பள்ளியில் அவர் தலைமை ஆசிரியராக இருந்தபோது ஓர் அறிவியல் கண்காட்சிக்கு ஏற்பாடு செய்தார். அக்கண்காட்சியின் வழிகாட்டியாக ரங்கப்பிள்ளை என்ற ஆசிரியர் ஸ்ரீங்கத்திலிருந்து வந்தார். மாணவர்கள் கண்காட்சியில் அவரவர் படைப்புகளைக் காண வந்தோர்க்கு விளக்கிக் காட்டினார். இக்கண்காட்சியின் சிறப்பம்சம் என்னவென்றால், மாணவர்கள் அதிக அளவில் பணம் செலவழித்து பொருள்களை வெளியிலிருந்து வாங்காமல், அவரவர் வீட்டிலும். சுற்றுப்புறங்களிலும் தேவையில்லையென்று தூக்கி ஏறியப்பட்ட பொருள்களையே கூடுமானவரை அதிக அளவில் பயன்படுத்தித் தங்கள் படைப்பு

களைப் படைத்திருந்தனர். கண்காட்சியின் நிறைவு விழாவில் சீனிவாசனின் அழைப்பை ஏற்று ஒரு பார்வையாளராகச் சென்றிருந்தேன். ரங்கப்பிள்ளையின் அனுகுமுறை, மாணவர்களின் உற்சாகம், சீனிவாசனின் தலைமை இவையனைத்தும் ஜார்ஜ் வாவிங்டன் கார்வர்ட்ஸ்கஜி நகரில் மேற்கொண்ட முயற்சிகளை நினைவுட்டின.

முத்தியால்பேட்டை பள்ளியை விட்டு விலகி சிறிதுகாலம் நைஜீரியாவில் பணியாற்றி னார். ஒருமுறை விடுமுறைக்கு வந்திருந்த போது நன்பர்கள் அவரைச் சந்திப்பதற்கு ஏற்பாடு செய்திருந்தோம். சிறந்த தேசுபக்தரான் அவர் சுதந்திர தினத்தையும், குடியரசு தினத்தையும் கொண்டாடத் தவறியதில்லை. நைஜீரியாவில் இந்திய சுதந்திர தினத்தை அவர் கொண்டாடிய விதத்தை வர்ணித்தார். பாரதத் தின் படத்தைப் பெரிய அளவில் வரைந்து மாநிலங்களைத் தனி வண்ணங்களில் எடுத்துக் காட்டி ஒவ்வொரு மாநிலத்திலும் மாணவர்கள் நின்று, அந்தந்த மாநிலத்தின் மொழி, கலாச் சாரம் மற்றும் பொருளாதாரச் சிறப்பு அம்சங்களை விளக்கினர் என்றார். இம்மாதிரியான புதுமையான நிகழ்ச்சிகளைக் கற்பனை செய்து செயல்படுத்துவதில் அவருக்கு அவரே நிகர்.

நைஜீரியாவிலிருந்து பாரதம் திரும்பிய வுடன் தனது நேரத்தைப் பயனுள்ள முறையில் மாணவர்களின் மேம்பாட்டிற்கென செலவழிக்க அவர் விரும்பினார். அத்தருணத்தில்தான் திரு ஆர். சீனிவாசன் (வித்யா மந்திரி) அவர்களின் தலைமையில் கல்வி சம்பந்தப்பட்ட ஒர் ஆராய்ச்சி மற்றும் பயிற்சி நிலையத்தை உருவாக்கியிருந்தோம். அந்த நிலையத்தின் சார்பில் பி.கே.சீனிவாசனின் வழிகாட்டுதலில் ஆரம்பப்பள்ளி மாணவர்கள் பங்கேற்ற ஒரு கணிதக் கண்காட்சி ஏற்பாடு செய்யப்பட்டது. சென்னை மற்றும் அதன் சுற்றுப்புறத்தைச் சார்ந்த பல பள்ளிகள் இதில் உற்சாகத்துடன் கலந்துகொண்டனர். தியாகராய் நகர் பர்கிட்

சாலையில் உள்ள சாரதா பெண்கள் பள்ளியில் இக்கண்காட்சி நடைபெற்றது. முக்கிய விருந்தினராக, அன்றைய கல்வி அமைச்சர் திரு அரங்கநாயகம் அவர்கள் கலந்துகொண்டு மாணவர்கள் மிகுந்த ஈடுபாட்டுடன் நிகழ்ச்சியில் கலந்துகொண்டதைப் பாராட்டிப் பேசினார். இந்நிகழ்ச்சி முழுமையாக வெற்றியடைய இரண்டு சீனிவாசன்களும் ஏற்ததாழ இரண்டு மாதங்கள் அயராது பாடுபட்டனர்.

கல்வியில், குறிப்பாகக் கணிதத்துறையில் அவருக்கு இருந்த ஈடுபாடு மிக அலாதி யான ஒன்று. முத்தியால்பேட்டை பள்ளியில் பணியாற்றிய போது வெளிநாட்டில் நடைபெற்ற கணித ஆசிரியர்கள் மாநாட்டில் கலந்து கொள்ள அவர் பெரிதும் விழைந்தார். பள்ளி யின் தாளாளரான டாக்டர் இரத்தினவேல் சுப்பிரமணியம், சீனிவாசனின் ஆர்வத்தினால் மிகவும் கவரப்பட்டு அம்மாநாட்டிற்கு அவர் சென்று வர ஏற்பாடு செய்தார். நைஜீரியா சென்று தாயகம் திரும்பியதும் ஸ்தாபன ரீதி யான தொடர்புகள் பல விட்டுப்போயிருந்தன. இந்நிலையில் ஆஸ்திரேவியாவில் நடைபெற்ற ஒரு மாநாட்டிற்கும் அவருக்கு அழைப்பு வந்தது. மாநாடு சென்று வருவதற்குத் தேவையான வழிச்செலவு ஆகியவைகளுக் காக அவர் சமுதாயத்தில் உள்ள பிரமுகர் களின் உதவியை நாட விழைந்தார். இயன்ற வரை எங்களுக்கு இருந்த தொடர்புகள் மூலமாக அவருக்குக் கணிசமான அளவுக்கு உதவி கிடைக்க வழிசெய்தோம். அந்த முயற்சியில் அவர் காட்டிய ஆர்வம், அயராது பிரமுகர்களைப் பார்ப்பதற்கு எந்த நேரமும் தயாராக இருந்த விதம் இவையனைத்தும் என்னுடைய தாய்க்கு வியப்புட்டன. ஒரு நாள் மனம் விட்டு, “இது என்னடா, அந்தக் காலத்தில் காசி, இராமேஸ்வரம் போவதற்கு உதவி கேட்டு வருவார்கள். அதைப்போல இருக்கிறதே இவரது ஆஸ்திரேவியா பயணம்?” என்று வியந்தார். “இவருக்குக் காசி, இராமேஸ் வரம் எல்லாம் கணிதம்தான்.

இரண்டிற்கும் வேறுபாடு இல்லை” என்று நான் பதிலளித்தேன்.

சீனிவாசனுக்கு எங்கும், எதிலும் கணிதமே தெரிந்தது. எடுத்துக்காட்டாக நாம் உட்காருவதற்குப் பயன்படுத்தும் மோடா, வீட்டைப் பெருக்கப் பயன்படுத்தும் துடைப்பம், வீட்டிற்கு எழில் கூட்ட பெண்கள் போடும் விதவிதமான கோலங்கள் இவையனைத்திலும் அவர் கணிதத்தைப் பார்த்து இரசித்தார். கிறிஸ்டோபர் ஆசிரியர் பயிற்சிக் கல்லூரியின் மூலமாகப் புள்ளிக் கோலங்கள் பற்றிய விரிவான செயல்முறை வகுப்புகளை நடத்திப் புத்தகங்களும் வெளியிட்டார்.

“As long as we live so long do we learn” என்ற பழமொழிக்கேற்ப அவர் வாழ்க்கை அமைந்திருந்தது. சென்னைப் பல்கலைக் கழகக் கல்வித்துறையில் ஓர் ஆராய்ச்சி மாணவனாகப் பதிவு செய்துகொண்டு ஆராய்ச்சியிலும் ஈடுபட்டார். ஆராய்ச்சிக்கு அவர் தேர்ந்தெடுத்த தலைப்பு ‘Permissibility of Teaching inaccuracies in High School Mathematics’. இதற்கான புள்ளிவிவரங்கள் சேகரிப்பதற்கு அவர் அரும்பாடுபட்டார். உலகின் பல பாகங்களில் வெளியாகும் இதழ்களில் இது குறித்து ஏதேனும் தகவல் வந்திருந்தால் அதன் நகல்களைப் பெறுவதில் அவர் மிகுந்த அக்கறை காட்டினார். இன்றைய தினம்போல் 25 ஆண்டுகளுக்கு முன்னால், *இமெயில், இன்டர் நெட் வசதிகள் அமைந்திருக்கவில்லை. தெரிந்த ரோட்டரி, லயன்ஸ் கிளைப் நண்பர்களைக்கொண்டு கூடுமான வரை அவருக்குத் தேவையான விவரங்களை சேகரிப்பதில் அவருக்கு ஒத்துழைத்தோம். இதில் எந்த அளவுக்கு வெற்றிபெற்றார் என்பது தெரியவில்லை.

வீட்டிலேயே தோட்டம் போடும் விஷயத்திலும் அவருக்கு அளவுகடந்த

ஸ்டுபாடு. இன்றைய அடுக்கு மாளிகை கலாச்சாரத்தில் கிச்சன் கார்டன் என்றாலே பலருக்கு வேடிக்கையாகத்தான் இருக்கும். ஆனால் 1950-80 கால கட்டத்தில் அது ஒரு சாத்தியமான திட்டமாகத்தான் இருந்தது. கிச்சன் கார்டன் மூலம் சிறுவர், சிறுமியர் தோட்டவேலையில் பழகி உழைப்பின் பெருமையை உணரவேண்டும் என்பதே அவரது நோக்கமாக இருந்தது.

முதியோர் கல்வியும் அவரது விருப்பமான திட்டங்களில் ஒன்று. வயோலா கல்லூரியில் படித்துக்கொண்டிருந்தபோது இதில் அவர் அளவுகடந்த ஸ்டுபாடு காட்டினார். பிற்காலத்தில் வித்யா மந்திர் சீனிவாசன் என்னிடம் உரையாடு கையில், தான் வயோலா கல்லூரி மாணவனாக இருந்தபோது பி.கே.சீனிவாசனுடன் சேர்ந்து முதியோர் கல்வித்திட்டத்தில் ஸ்டுபாடு கொண்டி ருந்தது பற்றிக் குறிப்பிட்டுள்ளார். அது மட்டு மல்ல, இரவு நேரத்தில் நீண்டநேரம் வகுப்புகள் நடத்திய பிறகு போக்குவரத்து வசதி இல்லாத தால் இருவரும் நடைபாதையிலேயே உறங்கின நாள்களையும் நினைவு கூறுவார்.

தனக்குக் கல்வி கற்பித்த ஆசிரியர்களிடம் அளவுகடந்த மரியாதை காட்டினார். நீண்ட இடைவெளிக்குப் பிறகு 1988 அல்லது 1989 ஆக இருக்கலாம். கணிதம் பற்றிய அவரது புத்தகம் ஒன்று சென்னையில் வெளியிடப்பட்டது. இந் நிகழ்ச்சி தி. நகரில் உள்ள தக்கர்பாபா வித்யாலயத்தில் நடைபெற்றது. சீனிவாசனின் நண்பர்கள் மற்றும் ஹிந்து நாளிதழ் ஆசிரியரான என். இரவி ஆகியோர் இதில் கலந்துகொண்டனர். இந்த விழாவின் சிறப்பு அம்சமாக சீனிவாசன் தனக்குக் கல்வி கற்பித்த முத்த ஆசிரியர்களை விசேஷமாக வரவழைத்து அவர்களைக் கொரவித்தார். போற்றுதற்குரிய இப்பண்பு நம் அனைவராலும் பின்பற்றப்பட வேண்டிய ஒன்றாகும்.

ஒப்பில்லா கணித ஆசிரியர் P.K. பூநிவாசன்

புகழ் பறைசாற்றல்

பெரிய அளவில் கணித ஆய்வு புரிபவர்களுக்கும், ஆராய்ச்சி நிறுவனங்களில் பணிபுரிபவர்களுக்கும் மட்டுமே பிரசித்தமாயிருந்த இராமானுஜனை சாதாரண மக்களுக்குக் கொண்டு சேர்த்த பெருமை திரு. P.K. பூநிவாசன் என்ற ஒப்பில்லா கணித ஆசிரியரைச் சேரும். இவர் சென்னை பாரிமுனையில் உள்ள முத்தியால் பேட்டை பள்ளியில் கணிதம் மற்றும் ஆங்கிலம் போதித்து வந்தார். இராமானுஜன் மீது மிகுந்த பற்று கொண்டு அவர் வாழ்ந்த இடமான கும்பகோணத்திற்கு அநேகமாக ஒவ்வொரு வார இறுதியிலும் சென்று அங்கு யாரேனும் இராமானுஜன் பற்றி ஏதாவது தகவல் அளிப்பார்களா? என முற்பட்டு இராமானுஜன் சம்பந்தப்பட்ட பல அரிய தகவல்களை சேகரித்து இரு தொகுப்புகளைக் கொண்ட புத்தகங்களாக ("Ramanujan : Memorial Volumes I, II") 1968ல் ராஜாஜி மூலம் வெளியிட்டார். இப்புத்தகங்களின் முதல் பிரதியை இராமானுஜனின் துணைவியார் ஜானகி அம்மாள் பெற்றுக் கொண்டார்.



த. பி. பூநிவாசன்

இராமானுஜன் மெமோரியல் : மற்றும் கூடுதல் :

இராமானுஜனின் கணித குறிப்புகளை நன்கு ஆராய்ந்து ஆவைகளில் எளிமையானவற்றை கண்டறிந்து பள்ளி மாணவர்களுக்கு புரியும் வகையில் மூன்று தொகுப்பாக AMTI (ASSOCIATION OF MATHEMATICS TEACHERS OF INDIA) சார்பில் வெளியிட்டார்.



இராமானுஜன் கணித குறிப்புகளை மாணவர்களுக்கு போதுமாக அறிந்து வெளியிட்டு தொகுப்பாக சார்பில் வெளியிட்டது. இராமானுஜன் கணித குறிப்புகளை போல் தொகுப்பாக சார்பில் வெளியிட்டது.

இராமானுஜனை சாமான்ய மக்கள் அறிவார் என்றால் அதற்கு சந்தேகமில்லாமல் இவரது பங்களிப்பே காரணமாய் அமைகிறது. திரு. P.K. ஸ்ரீநிவாசன் 1968ல் வெளியிட்ட புத்தகத்தில் இராமானுஜனின் மூல கடிதங்களையும் மற்ற குறிப்புகளையும் முதன்முதலில் வழங்கியிருந்தார். திரு. G.S. கார் புத்தகம் இராமானுஜனுக்கு கணிதத்தை அறிய தூண்டுகோலாக இருந்தது போல, திரு. P.K. ஸ்ரீநிவாசனின் புத்தகங்கள் இராமானுஜனை பற்றி அறிய பேருதவியாக அமைந்தது. தன் வாழ்நாள் முழுவதும் கணிதத்தின் வளர்ச்சிக்கு பெரும் பாடுபட்டார். அதிலும் குறிப்பாக இராமானுஜனை பற்றி பள்ளி மாணவர்களுக்கு அறிவித்த முதல் மனிதர் என்ற பெருமயை திரு. P.K. ஸ்ரீநிவாசன் பெற்றார். இவர் எழுதிய இராமானுஜன் நினைவு தொகுப்புகளே இராமானுஜனின் வாழ்க்கை வரலாற்றை எடுத்துரைக்கும் இரண்டாம் புத்தகமாக அமைந்தது.

இராமானுஜன் நினைவாக (திரு. போஸ் உதவியுடன்) நிறுவிய “இராமானுஜன் அருங்காட்சியகம்” என்ற நினைவு

இல்லமே திரு. P.K. ஸ்ரீநிவாசனின் மிகப்பெரிய பங்களிப்பாக கருதப்படுகிறது. இதுவே உலகளவில் இராமானுஜன் நினைவாக தோன்றிய முதல் அருங்காட்சியகமாகும். இந்த இடத்தில் இராமானுஜனின் பிறந்த நாள் மற்றும் நினைவு நாளை தவறாமல் இன்று வரை நினைவு கூர்ந்து இராமானுஜனுக்கு மரியாதை செலுத்தி வருகின்றனர். இவ்விடம் வடசென்னையில் உள்ள இராய்புரத்தில் “அவ்வை கலைக் கழகம்” என்ற அமைப்பின் கட்டிடத்தில் இயங்கி வருகிறது. தினந்தோறும் ஏராளமான மாணவர்கள் ஆசிரியர்கள் மற்றும் ஆராய்ச்சியாளர்கள் கண்டுகளிக்கும் இடமாகவும் இராமானுஜனின் புகழை பரப்பும் நினைவு இல்லமாகவும் விளங்கி வருகிறது. இதற்கெல்லாம் வித்திட்ட திரு. P.K. ஸ்ரீநிவாசனின் பங்களிப்பு அளவிட முடியாதது. திரு. P.K. ஸ்ரீநிவாசனை பற்றி மேலும் தெரிந்து கொள்ள அவர் மகன் ஏற்படுத்திய இணையதளத்தில் <http://www.pksrinivasan.com/index.php> காணலாம். இராமானுஜன் அருங்காட்சியகத்தை பற்றி தெரிந்து கொள்ள இணையதளத்தில் காணலாம்.



எனது பார்வையில் என் மாமனார்

ஸ்ரீமதி. ரமா தேவராஜன்

திரு. P.K சீனிவாசன் அவர்களின் இரண்டாவது மருமகள்

ஸ்ரீ குருப்யோ நம:

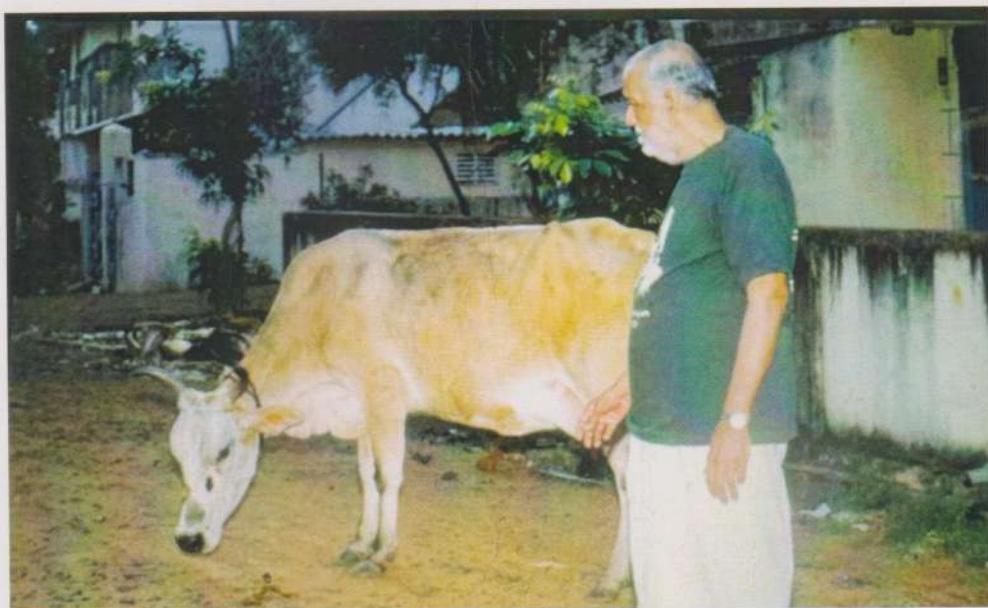
வணக்கம். நான் ஸ்ரீமதி.ரமா தேவராஜன். திரு. P.K. ஸ்ரீனிவாசன் அவர்களின் இரண்டாவது மருமகள் :

எனக்கு அவர்தான் கணித ஆசிரியர். அவர் சொல்லிக்கொடுக்கும் விதம் மிகவும் வித்தியாசமானது. ஒரு தலைப்பில் சொல்லிக்கொடுக்கும்போது, நமக்கு முதலில் அதைப்பற்றி என்ன தெரியும் என்று கேட்டு, அதன் மூலம் புரியவைப்பார். மேலும் பயிற்சி கணக்குகள் போல் உள்ள எடுத்துக்காட்டுகளைச் சொல்லி பயிற்சி கணக்குகளை நம்மையே போட வைப்பார் அதனால் நமக்கு அந்த தலைப்பில் எப்படிப்பட்ட கணக்குக் கொடுத்தாலும் பதற்றமோ, பயமோ இன்றி சுலபமாகப் போட முடியும்.

என் மாமனாரை பலருக்கு கணக்கு ஆசிரியராகத் தான் தெரியும். ஆனால் அவருக்கு பல படிப்புச்சார்ந்த துறைகளிலும் உள்ள ஈர்ப்பு, அறிய விரும்பும் ஆர்வம், அதற்காக பாடுபட்டு விளக்கங்களையும் விஷயங்களையும் அறியும் விதம், அதை கேட்பவர்க்கு புரியும் விதமாக எனிமையாக விளக்கும் ஆற்றல் ஆகியவை அவரிடம் பழகியதால் என்னால் உணர முடிந்தது. உதாரணமாக, எனக்கு தையல் கலையில் மிகுந்த ஈடுபாடு. அதைத் தெரிந்துகொண்டு எனக்கு ஒரு நல்ல - பல தகவல்கள் அடங்கிய சிறப்பான புத்தகத்தைத் தேடி அன்பளிப்பாகத் தந்தார்.

மேலும் சமையல் கலையிலும் அவருக்கு மிகுந்த ஈடுபாடு. புத்தகங்கள், செய்தித்தாள்கள் அதிகம் படிப்பார். அதில் இடம்பெற்ற நல்ல சமையல் குறிப்பு, செயல்முறை விளக்கம் ஆகியவற்றைக் கூறி செய்து கொடுக்கச் சொல்லி, அதை ரூசித்து மனதார பாராட்டுவார். மாற்றும் இருப்பின் எடுத்துச் சொல்லி புரியவைப்பார். அளவுகள் பற்றி மிகுந்த கவனத்துடன் இருப்பார். அவருடைய மிக நல்ல பழக்கம் - தனக்கு சாப்பிட வந்த எந்த ஒரு உணவு பதார்த்தத்தையும் - எப்படி - எச்சவை இருந்தாலும் எநியமாட்டார். தன்பிள்ளைகளையும் அவ்வாறே வளர்த்துள்ளார். உணவை வீணாக்கமாட்டார்.

சிறு குழந்தையாய் இருக்கும்பொழுதே கணிதத்தில் ஆர்வத்தை வளர்க்க வேண்டும் என்பார். ஏனென்றால், பச்சிளம் குழந்தை பால்குடிக்கும்போதே ‘இரண்டு’ என்பதை அறிகிறது என்பார். ‘Maths with Mummy’ என்ற புத்தகத்தை வாங்கி எங்கள் எல்லோருக்கும் அன்பளிப்பாகத் தந்தார்.



‘எங்கும் கணிதம் எதிலும் கணிதம்’ என்பது அவர் எண்ணம். காய்கறிகள், பழங்கள் ஆகியவற்றில் உள்ள எண்ணிக்கை, அமைப்பு, சமச்சீர் தன்மை (Symmetry) ஆகியவற்றைக் கூறுவார். கறிவேப்பிலை, புளிய இலை ஆகியவற்றில் உள்ள கணித வேறுபாடு பற்றி அதிகம் கூறியுள்ளார்.

என் தகப்பனாரை இழந்திருந்த சமயத்தில், அப்பொழுது செய்யப்படும் சம்பிரதாய காரியங்கள் அனைத்திற்கும் காரண காரியங்களைத் தான் முதலில் தெரிந்து கொண்டு எனக்கு விளக்கம் அளித்து என்னைத் தேற்றினார்.

எனக்கு ‘இறப்பிற்கு பிறகு என்ன?’ என்ற ஒரு சந்தேகம் எழுந்து அதை அவருடன் பகிர்ந்துகொண்டேன். உடனே அதற்காக அது சம்பந்தமாக செய்தித் தாள்களிலும், புத்தகங்களிலும் வந்த பல விஷயங்களைத் தொகுத்து ஒரு மிகப் பெரிய ஆல்பமாகவே செய்துத் தந்தார். மேலும் ‘Many Lives Many Masters’ என்ற புத்தகத்தையும் வாங்கித் தந்தார்.

வீட்டு வாசலில் கோலங்களிலும் அவருக்கு மிகுந்த ஈடுபாடு உண்டு. எங்கு கோலத்தைப் பார்த்தாலும் அதில் உள்ள புள்ளிகளின் அமைப்பு, அதில் உள்ள கோணச் சமச்சீர் அமைப்பு (angle Symmetry) அதன் வடிவம் ஆகியவற்றைக் கண்டு வியந்து, தமிழ் செய்தித்தாள் ஒன்றில் ‘கோலங்களில் கணிதம்’ என்று ஒரு கட்டுரையாகவே எழுதினார்.

அவர் செடி, கொடி, மரங்கள் மீதும் மிகவும் ஆர்வம் கொண்டவர் ஒரு சமயம் கோவை விவசாய பல்கலை கழகத்தில் இருந்து, வருடம் முழுவதும் காய்க்கும் துவரை மற்றும் பல விதைகளை வரவழைத்து தன் வீட்டில் வளர்த்து எல்லோருக்கும் காட்டி மகிழ்ந்தார். இயற்கையை மிகவும் நேசிப்பவர்.

அவர் சமயக் கோட்பாடுகளிலும் மிகுந்த ஆர்வம் கொண்டவர். ஆவணி அவிட்டம் வந்தால் அதிகாலை 4 மணியிலிருந்தே எல்லோருக்கும் அந்த பண்டிகை மனநிலையை கொண்டுவந்துவிடுவார். நவராத்திரி வந்தால் மாலையில் வீட்டில் உள்ள அனைவரையும் இருக்கச்சொல்லி, சாஸ்திரிகளை வரவழைத்து ஸ்லோகங்கள் சொல்லச்சொல்லி வருபவர்களுக்கு தாம்புலம் கொடுக்கச் சொல்லுவார். தன்னுடைய அப்பா, அம்மாவிற்கு காரியங்கள் செய்வதிலும், சந்தியாவந்தனம், குரியநமஸ்காரம் ஆகியவை செய்வதிலும் அவர் தவறியதே இல்லை.

எதிர்மறை எண்ணங்கள் என்பது அவரிடம் கிடையாது. அப்படி யாராவது இருந்தால் அவர்களிடத்தில் subject சம்பந்தமாகவோ அல்லது செய்தித்தாள் விஷயங்களையோ பேசி மாற்றி விடுவார். குழந்தைகள் இடத்தில் கூட எதிர்மறையாக பேச அனுமதிக்க மாட்டார். உதாரணமாக ‘போகாதே, வராதே, பண்ணாதே’ என்று சொல்வதற்கு பதிலாக ‘இப்படிச்செய், இங்கு வா, அங்கு போ’ என்று சொல்லுவார்.

அவர் நிறைய 3 வார்த்தைகள் கொண்ட தொகுப்பினை கூறுவார் தமிழில் ‘நொ-நெ-நி’ என்பார். அதாவது ‘நொகத்தடி-நெருக்கடி-நிற்கதி’ இந்த மாதிரி சமயத்தில் தான் மனிதன் வேகமாகவும் அறிவுப்பூர்வமாகவும் செயல்படுகிறான் என்பார். ‘ஒரு பொருளுக்கு ஒரு இடம்’ என்பது அவரது வழக்கம்.

அவர் எப்பொழுதும் உண்மையையே பேசுவார். எவ்வளவோ பேரும், புகழும், அவருக்கு என்று ஒரு இடமும் (சமுதாயத்தில்) இருந்தும், எந்த சிபாரிசும் அதை வைத்து அவர் செய்ததும் இல்லை; தனக்கென்று செய்து கொண்டதும் இல்லை. நேரம் தவறி செய்தது என்பது அவர் வாழ்க்கையிலேயே கிடையாது. நேரம் தவறாமை என்பதை அவரும் பின்பற்றுவார்; கூட இருப்பவரையும் பின்பற்ற வைத்து வெற்றி காண்பார்; வெற்றி காண வைப்பார். எல்லோரிடத்திலும் நன்கு பழகுவார். அவர் வாழ்வில் தொழில், சமய, இட, மொழி பாகுபாடு – வேற்றுமை பார்த்ததே இல்லை. தெரிந்தவர், தெரியாதவர், வேண்டியவர், வேண்டாதவர், சொந்தக்காரர்கள் என்று பிரித்துப் பார்க்காமல் எல்லோரிடத்திலும் ஒரே மாதிரி பழகுவார். வீண் பேச்சுக்கே அவர் வாழ்வில் இடம் இருந்ததில்லை. * குடும்பத்தாரிடம் மிகுந்த அன்பையும் அக்கறையும் கொண்டவர். எந்த எதிர்பார்ப்பும் யாரிடத்திலும் அவருக்குக் கிடையாது. தேசப்பற்று மிகுந்தவர். ஓவ்வொரு வருடமும் சுதந்திரத் தினத்தன்று அண்டை விட்டுக் குழந்தைகள், விட்டுவேலை செய்பவர்கள், ஆகியவர்களை அழைத்து, தன் வீட்டு மாடியில் அவர்கள் மூலமாக நமது தேசிய கொடியை ஏற்றி இனிப்புகள் வழங்கி மகிழ்வார். காந்தீய வாதி. அவர் கதர் ஆடை அணிந்தே பல நாடுகளுக்கும் சென்றுள்ளார். ஒழுக்கச்சீலர். எடுத்த காரியத்தை முடிக்கும்வரை ஓயவே மாட்டார். மிகவும் எளிமையான உணவையே உண்பார். ‘உணவே மருந்து’ என்பதில் தீர்க்கமாக இருந்தார்.

மிருகங்களிடம் மிகவும் அன்பு, ஆர்வம் கொண்டவர். எந்த ஒரு உயிரினத்தையும் அடிப்பதோ, கொல்வதோ அவருக்கு அறவே பிடிக்காது. எலி வந்தால் கூட கோணியில் பிடித்து விட்டுவிட்டு வரவேண்டும் என்பார். சிறு பூச்சிகளை கூட துன்புறுத்த மாட்டார். அப்படி ஒரு நிகழ்ச்சியை காண நேர்ந்தால் தன்னை துன்புறுத்திக் கொள்வார்.

பெண்கள் படித்து, முன்னேறுவதில் அவருக்கு அதிக ஆர்வம். தன்னுடைய மகள்கள் மற்றும் மருமகள்களின் முன்னேற்றத்திற்காக பாடுபட்டு உதவியும் உள்ளார். அதில் ஒருவரை தன் ஒரு புத்தகத்தின் தெலுங்கு மொழியாக்கம் செய்ய வைத்து சிறப்பித்தார்.

அவருக்கு பொதுவாகவே நிறைய தபால்கள் வரும். அதற்காக காத்திருந்து தபால்காரரிடம் இருந்து பெற்று, உடனே படித்து, பதிலும் எழுதிவிடுவார். எந்த ஒரு செயலையும் தள்ளிப்போட மாட்டார்.

பிலோ இருதயநாத் என்ற ஆசிரியர் வருடாவருடம் விடுமுறையில் அவரைப் பார்க்க வருவார். பிலோ இருதயநாத் தனது விடுமுறையில் காடுகளுக்குச் சென்று பூச்சிகளையும், மிருகங்களையும் படம் எடுத்து வருவார். அதைப்பார்த்து நிறைய விவரங்களை சேகரித்துக் கொள்வார். பிலோ இருதயநாத் அவருடனான நட்பு பல வருடங்கள் நீடித்து, மலைச்சாதியினர் பற்றி அவருக்கு இருந்த ஆர்வத்தை புத்தக வாயிலாக அறிந்து கொள்ள மிகவும் ஏதுவாக இருந்தது.

பல சொந்த இன்னல்களுக்கு இடையிலும் கணித சம்பந்தமான புது உத்திகளுக்காக உயிர்ப்புடன் வேலை செய்வதிலும் முனைப்பாக இருந்தார். புத்தகம் எழுதுவதிலும், கணித கண்காட்சிகள் நடத்துவதிலும், workshop நடத்துவதிலும் சோர்வு கொண்டதே இல்லை. அவருடைய மிகக் கடினமான உழைப்பு ‘கணிதத்தின் மீது உள்ள பயத்தை (Phobia) போக்குவது எப்படி’ என்பதில் இருப்பது குடும்ப உறுப்பினர்களான எங்களுக்கும் மற்றவர்களுக்கும் ஊக்குவிப்பதாக இருந்தது.

அவர் எங்களுக்கும், மேலும் பலருக்கும் ஒரு சிறந்த குரு, வழிகாட்டி, தத்துவவாதி, அடையாளச்சின்னம் ஆகியவைகளாக இன்றும் உள்ளார்; என்றும் இருப்பார்.

An outstanding acolyte of mathematics

Dr. M.S. Raghunathan

I cannot claim to have known Shri P K Srinivasan very well. I have met him perhaps half a dozen times, always at some events related to mathematics. I always came away from such meetings with admiration for his passionate love of mathematics and the avidity with which he was exerting himself to popularize it among school students. Of course, I knew about his tireless efforts in Chennai over the years in this direction even before I met him, but the meetings helped me appreciate these efforts better. Srinivasan was an admirer of the great Srinivasa Ramanujan and took many commendable initiatives to bring the elementary parts of his mathematics to his students in school. Another of his admirable achievements was the collection of Ramanujan-related memorabilia. The mathematical community owes him a debt of gratitude for these wonderful services he rendered to it. On this occasion of his birth centenary, I join everyone in the community to place on record my personal gratitude for his immense services to mathematics.

About the author:

Madabusi Santanam Raghunathan FRS is an Indian mathematician. He is currently a Distinguished Professor of Mathematics at the Centre for Excellence in Basic Sciences(CEBS) in Mumbai, India. Previously, he was the Head of the National Centre for Mathematics, Indian Institute of Technology, Mumbai. Formerly Professor of eminence at TIFR in Homi Bhabha Chair.

Innovative Math Educator

Shri. Sadagopan Rajesh

Founder-Director – Aryabhatta Institute of Mathematical Sciences

PKSIM

It's been a great fortune to have myself associated with the legendary Maths Educator P K Srinivasan sir. During my interactive days with PKS sir, I saw in him the PKSIM.

What is it?

Person Known for Stimulating Interest in Mathematics!

Here is the person who not only painted Maths in the compound walls of his living place @ Thillai Ganga Nagar, Nanganallur where I used to meet, he could paint maths in the head of anyone who could come across him even for a little conversation.

He could even greet them with his famous Date Magic Square card thus passing on his superstar Srinivasa Ramanujan's gift as well! That's the mesmerizing power of PKS!

All Mathematics Teachers must have the PKSIM in their memory for their eventful and joyful journey!

Agni Pariksha

A young student Meenakshi Sundaram Pillai (MSP) was undergoing my Maths courses. He was extremely bright to absorb quickly both the concepts and techniques very well.

Being a PSBB K K Nagar student, he was attending a Maths Club @ his school where PKS sir used to visit and pose thought provoking questions in Maths.

An interesting incident in 1998!

MSP was answering spontaneously to the surprise of PKS sir. When PKS sir asked how he could respond so quickly, MSM said that he was learning well from a tuition teacher Rajesh sir (myself).

PKS sir was taken aback since a tuition teacher usually prepares for routine problems and exams; but MSM was answering non-routine problems at ease.

So, PKS sir decided to test me with one math puzzle (any 4 distinct whole numbers

operated with a specific rule finally attains 4 zeros) for the proof. In fact, it was then an unsolved puzzle, solved by a Japanese mathematician.

MSM gave me this problem without telling the above incidences and asked if I could solve it. Without knowing the weight behind this, I was able to solve quickly and crisply using nice algebraic definitions and theories, in about half a page.

MSM understood and happily took the page.

A couple of days later MSM told me that PKS sir appreciated me by saying to MSM that “Your Rajesh sir has solved the puzzle extremely well (ஓமாய்சுட்டார்!) He is an educator not a tuition teacher. I am eager to meet Rajesh sir. Convey to your sir”

Then, I came to know about the sequence of events and the background of PKS sir, his **Agni Pariksha** and appreciation of me, after passing it (the highest reward of my life till date!).

MSM is a scientist at INTEL now!

PKS – The Bookman

When I first met PKS sir @ *Thillai Ganga Nagar, Nanganallur crossed the Mathematical compound gate, I found that he was living on the firrst floor among the sea of Mathematics Books.

Having conversed for the first time, I understood that he is an educator par excellence who focuses on stimulating the primary (elementary) and middle school education, mainly through his authored

books and penned articles in famous daily news.

PKS sir was mentally young at the age of 74 striving to propagate the joy of Mathematics! Truly an amazing feeling I had, during my first meeting.

Later in the year 2000 (2K), he conducted a mega book fair @ Anna Nagar, Chennai where many new books were stalled, and many visitors happily bought the books.

I was watching one rickshaw man (RM) interacting with PKS sir about his son's exam preparation and whether there is any book helpful for him.

PKS sir counselled the layman to understand by himself that knowledge is powerful, citing few examples. The rickshaw man got convinced and later bought knowledge books. PKS sir happily conveyed his wishes to RM's son but asked RM to ask his son read them without fail.

The books were the weapons used by PKS sir to transit at least a part of his passionate spirit towards Mathematics Education.

No wonder PKS sir could teach narikuruva (semi-nomadic community) children Maths, third grade students' algebra with his innovative teaching strategies.

He decided to field MSP and Preetham from PSBB KK Nagar school to participate in an Intel Science Fair (1999 @ Bombay – now Mumbai) under his guidance and my co-guidance for the topic Taxicab Geometry. It was an amazing experience for me and the two boys, to learn and come up with

new dimensions of this unknown version of geometry.

When I was about to leave for Bombay, I told PKS sir that I will get him two new Maths books from Bombay shops. He smiled and replied, "Try to get that I don't have!"

After having the good experience of the Intel Science Fair @ Nehru Planetarium, Worli, amid mildest tremors (felt due to earthquake @ Bhuj, Gujarat), I could buy two books as desired.

We returned to Chennai, visited PKS sir and was narrating the experiences of the Intel Science Fair. I showed one newest book then, PKS sir went to his library and returned with a similar copy and told that he availed it already. The other book when I showed, his eyes went wide with extreme curiosity because he didn't have it. It was a very old book named *Steel Geometry* authored by famous Sunder Rao in 1905.

He asked me where I got it? I smiled and told that I got it from a roadside old book vendor just outside Queen Victoria station. He said very good (ఫలితాంశు) and it's still lingering in my ears. Another cherishing moment!

PKS – The Ultimate Fan

In the world that we know about fans of celebrities from movies, sports, music, etc .., PKS sir celebrated the man who knew infinity throughout his life.

PKS sir was the ultimate fan of the legendary Srinivasa Ramanujan. His compilation of volumes about Ramanujan from young

to adult, in the form of memorial books, creativity of Ramanujan Vols - 1,2, etc... are the proofs.

The resources of PKS about Ramanujan became a treasure for many.

That's why PKS sir constructed a Museum for Ramanujan inside his heart and searched for a physical place outside, finally found a place in the outskirts of Chennai through a support.

When I visited the Museum @ Royapuram along with my students and enjoyed the exhibits, PKS sir, the curator director then, was extremely happy.

At the same time, he said that many schools in the heart of the city felt that the Museum is far off but they took school children a tour to the Zoo, picnic, etc... but no time for the Museum!? He was much concerned about why the educational institutes haven't inspired the so-called dull students through such visits.

Without fail, every year he invited the family members of Srinivasa Ramanujan personally (I accompanied PKS sir in my associated years) on celebrating the legend's birthday exactly on 22nd December, with invitation and due respect. Great personalities were invited to deliver lectures to mark the occasion.

When people visit the museum and appreciate a lot but spell Ramanujan as Ramanujam, PKS sir brushes the appreciation and tells them spontaneously that "The math genius was Srinivasa Ramanujan not Srinivasa Ramanujam" Please correct it.

PKS sir stayed in a room on the terrace of the Museum for days together and was reluctant to move away from it to his house in the city.

Such was the bonding between the legendary Maths Educator PKS sir and the legendary Mathematician Srinivasa Ramanujan.

PKS – The Propagator

PKS sir in his mid-70's referred me (I was 30) to few schools to propagate the innovative teaching methods to teachers, mainly the hands-on activity-based ideas.

The kits and the novel concepts developed by PKS sir for Ramanujan Museum and Math Education Centre are a big boon to the maths teachers of primary and middle school at large. PKS sir took steps and even tried to improve further and modernise the conceptual kits, all at a low cost, so that it's reachable to all.

PKS sir asked me to participate in the first international conference held at New Delhi, Dec 20-23,2001. I applied for the same. He further guided me in availing the copy of the book "Crest of the Peacock" by George Verghese through his resources.

Having studied the book, I compiled and presented a paper Algebra and its teaching in historic perspective at the conference, finally highlighting PKS sir's innovative teaching strategy in Algebra and spreading Mathelang (pattern language and design language) even to even primary kids.

Many delegates from different countries appreciated the lecture and amazed by PKS

sir's innovative ideas of teaching, wanted to learn more about his works and the Ramanujan Museum (I told them in my conversation later about the Museum). Few of them were already aware of PKS sir's work and the Museum.

PKS sir inspired me to start a monthly booklet magazine Ramanujan's Math Lovers Club (RMLC) that ran successfully for a period of 4 years, subscribed by readers from different parts. From Andaman & Nicobar Islands, fans of RMLC (they said fans) used to visit me personally whenever they came to Chennai.

On one occasion, PKS sir was talking about his co-founding AMTI (Association of Mathematics Teachers of India) with other eminent personalities and the materials, journals of The Mathematics Teacher, Junior Mathematician, etc... I asked where it was.

He replied that it is in Triplicane, Chennai and suggested that I join as a member. I said I will do so to avail the material and learn more things.

PKS sir told that "Yes. More than that, your service will be needed there."

After I joined AMTI as a member in 1999, I understood after a few years, what PKS sir meant exactly.

PKS sir has the greatest intent of propagating maths ideas mainly teaching pedagogical ideas at a MAXIMUM level even if there is a MINIMUM chance for doing it.

Though physically aged at that time, mentally PKS sir was the most vibrant youth having

the amazing thirst to propagate Maths education by any chance.

This was the greatest impact PKS sir had on me.

PKS – The Organiser

At the age of 77, extremely enthusiastic PKS sir planned to organise a three Saturday interactive and intensive P G teacher trainer course in Mathelang.

It was launched on August 18, 2001, by Tamil Nadu Science and Technology Centre, Chennai in collaboration with Ramanujan Museum and Math Education Centre, the project continued in waves of three consecutive Saturdays for ten batches, till April 2002.

Each batch fifteen schools depute P G Math teachers, one from each school for the course and offer opening for the parents also, two

EMPOWERMENT OF CHILDREN

THROUGH MATHELANG

THREE SATURDAY INTENSIVE & INTERACTIVE

TEACHER TRAINER COURSE

Commencement dates		last date for registration
18.08.2001	BATCH I	11.08.2001
08.09.2001	BATCH II	01.09.2001
29.09.2001	BATCH III	22.09.2001
20.10.2001	BATCH IV	13.10.2001
10.11.2001	BATCH V	03.11.2001
01.12.2001	BATCH VI	24.11.2001
22.12.2001	BATCH VII	05.01.2002
12.01.2002	BATCH VIII	15.12.2001
02.02.2002	BATCH IX	25.01.2002
23.02.2002	BATCH X	16.02.2002

PROSPECTUS with APPLICATION FORM for REGISTRATION

Venue of the course: BIRLA PLANETARIUM ---- Lecture Hall

PERIAR SCIENCE & TECHNOLOGY CENTRE, Chennai - 600 025
&
RAMANUJAN MUSEUM & MATH EDUCATION CENTRE, Chennai - 600 013

connected with each school, for participation as observers.

The trained teachers in turn should guide their pre-middle school math handling colleagues for two weeks in drawing up class

wise activity sheets for lower primary classes and worksheets for upper primary classes for yearlong allocation and distribution of instructional themes with appropriate learner friendly strategies of instruction.

Third Saturday

Mathelang Expo and Management meet

Final session and valedictory function

Forenoon

Declaring open the Mathelang Expo for media and NGOs.
Assembly of all math handling teachers in pre middle school classes with identity certificates in the prescribed form for being handed over to the organizers through their respective teacher-trainers.

10:00 A M to 11:30 A M Mathelang Expo

11:30 A M to 11:35 A M BREAK

11:35 A M to 1:00 P M

Discussion on learning of tables, visuals in question papers, Mathelang for the gifted.
Math handling teachers leave after submitting revised copies of activity sheets and work sheets.

1:00 P M to 2:00 P M LUNCH

Afternoon

2:00 P M to 2:30 P M
Welcome the school management members.

2:30 P M to 3:30 P M

*Management meet discussion—
collection of visiting cards.
Group photo*

3:30 P M to 3:35 P M BREAK

3:35 P M to 5:00 P M

Valedictory Function –

*Feed back through impressions from participant members, deputed teachers and observer parents.
Issuing Certificates to participant schools and deputed teacher-trainers.*

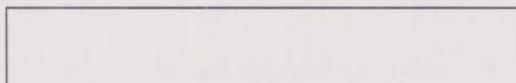
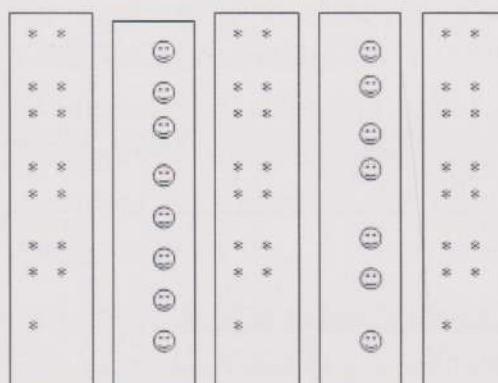
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Seating EXPO THEATRE



Here is a sample part ↑

This was meticulously planned: the program schedules, EXPOS position wise, order wise, including seat arrangements of the EXPO Theatre, data bank of the participants, appendix, working lunch & tea, all in detail, were well organised by PKS sir.

An Honorary Consulate of a foreign nation was invited to preside and distribute Certificates to the participants after the completion of every batch (three Saturdays).

In this photo, I was asked to explain to the Deputy High commissioner of the Sri Lankan consulate, Chennai, about the EXPO, my students Santosh, Anand, Hemant and a teacher watching, along with the curiously listening PKS sir, the man behind the mission.

I assisted in typing out all the drafts prepared by PKS sir for this event, apart from

developing the EXPO material. Many of my students happily volunteered for supporting towards preparation of the MATHELANG EXPO material.

For the Pattern Language (PL) EXPOs, we engaged roadside painters of Virugambakkam for painting MATHELANG pattern language as desired in the banner clothes. I went personally to guide and monitor them, as it is entirely new for them {they are experts in usually painting celebrities / politicians / related news). They did a wonderful job and admired my patience in sitting along with them for hours across a few days.

Interestingly one painter named Ganesa was able to recognise patterns, interacted with me and said that Maths found to be easier by this way!



A credit from a layman! What more one can ask for?

Many schools participated and benefitted at large, in this eventful project.

The success began with Ganesa's words! The program and the EXPO were a grand success!

For the Design Language (DL) EXPOS, the students helped a lot in collecting several dimensions of cuboidal boxes mainly boxes of branded chocolate bars and others.

DL EXPOS were the ones that showed a^3 , a^2b , ab^2 , abc , ... visually!

Thanks to Dr. M Sargurumoothy, Executive Director of Periyar Science and Technology Centre and Mr Azhagirisamy, the scientific

officer for supporting the cause all along, to conduct the project in a smooth manner.

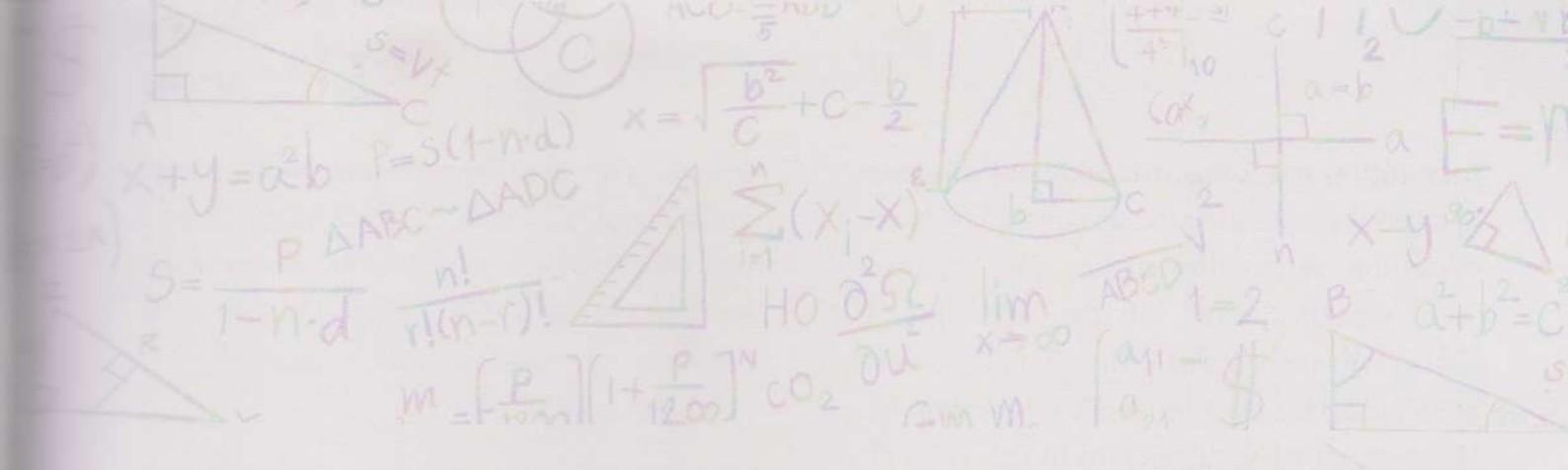
Finally, a mega gala EXPO was held in the vacant ground of Birla Planetarium, with the support of St John's International School, Palanjur headed by Dr Rajkumar.

It was followed by a function with several dignitaries on the stage.

Repetition is living; Innovation is life; Interpretation is originality were the slogans used by PKS sir for this project.

No words to describe the joyful ride I had, of learning the teaching of amazing Maths, with the one and only PKS sir!

Thanks to PKS Math Education & Research Trust for filling my memories about PKS sir!



Avant Garde Teacher

Shri. Kannan Srinivasan

S/o. Shri. P.K. Srinivasan

Tech Entrepreneur and Transformation Leader, USA



It is both an honour and a profound privilege to write about my beloved father, the legendary math educator, Shri P.K. Srinivasan. His remarkable journey spanned from the pre-independence era in India to 2005, during which he dedicated his life to transforming the landscape of mathematics education. With his unique approach to simplification, he sought to eradicate the age-old phobia surrounding mathematics, advocating for its accessibility to all.

Known as a Teachers' Teacher, my father travelled the length and breadth of India—from *Jammu* to *Kanyakumari* and *Ahmedabad* to *Kolkata*—conducting math workshops for teachers. His commitment to mathematical enlightenment was exemplified in his tireless advocacy for

innovative teaching methods and his role in special projects aimed at enhancing math education across the nation. He engaged with various offices of the Ministry of Education and major educational bodies, introducing **innovative math lab activities**. He even gifted a curriculum to the NCERT to implement the concept of Math Labs in schools, a vision he passionately espoused.

I fondly recall a conversation with him during my visits to India, where he expressed his unwavering belief that “Math Kits and Math Labs” would soon be introduced by the Central Board of Education after his time. At the age of 77, he was already well into a life of mentorship and exploration, continuously visiting schools and institutions, driven by an undying zeal for sharing knowledge.

As I grew up and began my own journey away from home, I came to realize the true magnitude of my father’s work. He embodied a philosophy of simple living and high values, and his approach to teaching was revolutionary. He viewed every child and teacher in a most holistic light, insisting that *every child is inherently gifted, and it is often the teaching methods that dull that brilliance*. He passionately proved that mathematics is not solely for the ‘brainy’ but for everyone willing to learn.

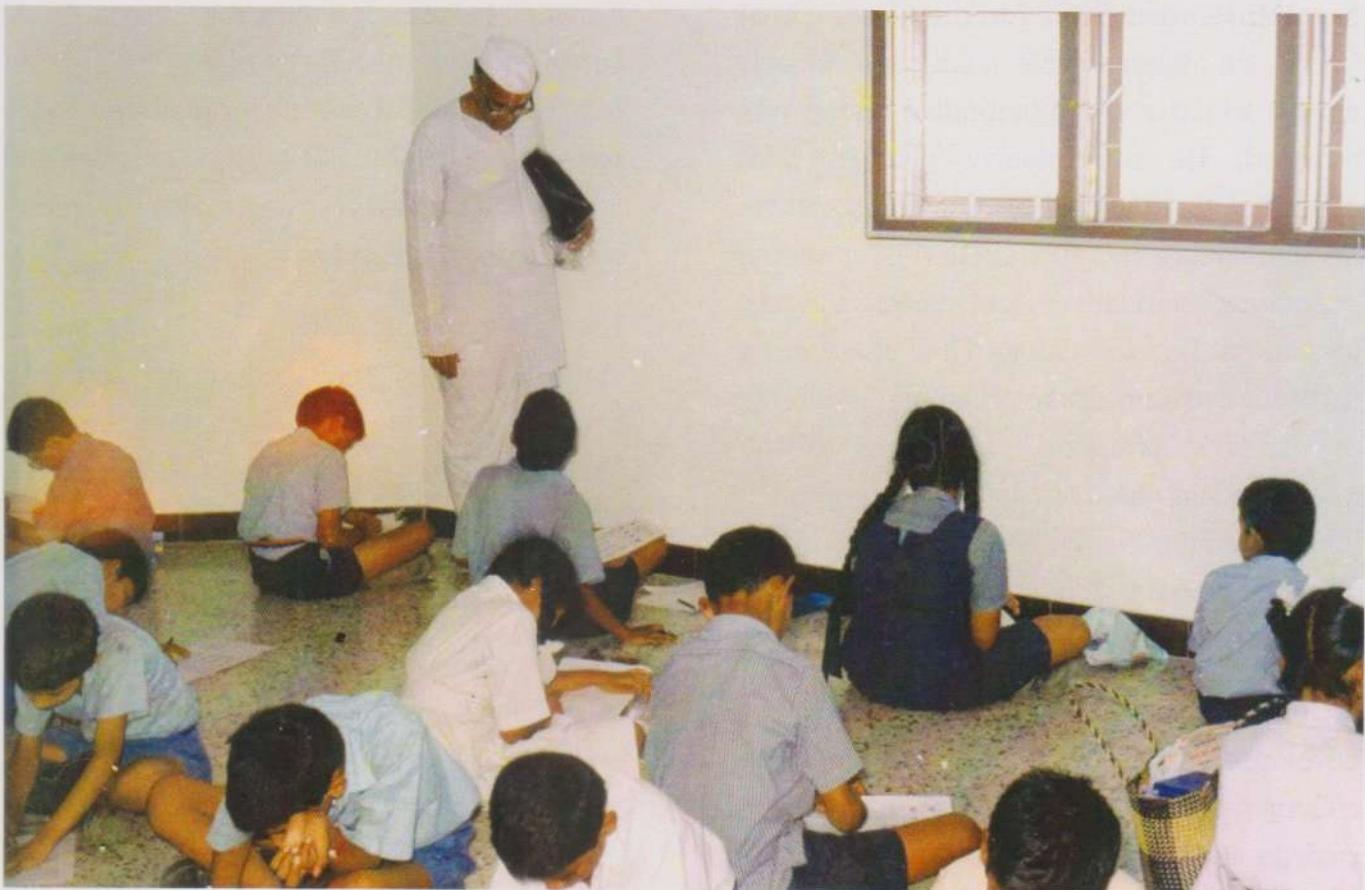
After his passing in June 2005, I took the opportunity to retrace the steps of his remarkable journey. I was astonished to discover that for over 25 years, he devoted himself to teaching math in underprivileged schools, including a notable initiative at the

School for Narikuravas(Gypsies), based in Saidapet, Chennai. His ability to inspire his students was remarkable; some even participated in a Math Expo where their engagement was met with admiration from attendees.

His commitment to mathematics extended internationally as he participated in Math Congresses (ICME) around the globe, establishing connections with esteemed mathematicians and actively sharing insights over the years. Indeed, my father conducted over 100 math expos, enlightening more than 50,000 students and training over 5,000 math teachers in India, the USA, and Nigeria. His work with barefoot teachers in rural settings was groundbreaking. For over a decade, he contributed to the Rishi Valley Outreach School System, creating a curriculum that reached beyond Indian borders, impacting neighbouring countries like Nepal and Bhutan. His efforts were recognized by the Japanese Government, which awarded Rishi Valley School for its initiative in promoting education.

As I reflect on my father’s legacy, I am filled with pride and gratitude. He was a beacon of hope and inspiration in the world of mathematics education, and his teachings will reverberate through generations to come. In this volume, I hope to honour his memory by sharing his incredible journey and the indelible mark he left on countless lives.

In the beautiful journey that my father, Shri P.K. Srinivasan, embarked upon many



milestones punctuating his remarkable career, a few stood particularly tall. Among these milestones was his dedicated work on the biography of the legendary mathematician, *Srinivasa Ramanujan*. In the 1960s, he undertook the substantial challenge of getting this important work published without any major funding or institutional support. He adeptly reached out to philanthropists and fellow mathematicians, navigating numerous rejections before ultimately securing enough support to bring his vision to life.

My father's dedication bore fruit when he became the sole teacher selected for the *Fulbright Exchange Teacher Program in 1965-66*. His time in the United States was marked by immense joy and a steadfast resolve to return to India once he saved

enough money to publish **Ramanujan's Volumes I and II**. Despite being offered a long-term position and the prospect of a green card by the school system, he chose to return to India, driven by his commitment to his work.

As fate would have it, he faced a financial shortfall just before publication. In a selfless act, my beloved mother pawned her only gold chain to provide the funds necessary for the release of the book. Their hard work culminated in a grand launch event attended by distinguished guests, including the legendary *Shri Rajagopalachari (Rajaji)* and *Mrs. Janaki Ammal*, Ramanujan's widow.

My father further honored Ramanujan's legacy by organizing a walk with students

from *Muthialpet School* to the General Post Office on Ramanujan's 75th anniversary, during which a commemorative stamp was released. He meticulously planned both memorial services and birthday celebrations for Ramanujan and even crafted handwritten invitations to relatives, both near and far, to join in the festivities. This unwavering dedication to Ramanujan's memory highlights my father's profound connection to the mathematician and his lifelong commitment to propagating Ramanujan's life and works among school students and a broader audience.

In his interactions with teachers, my father developed catchy slogans to promote effective pedagogy and foster a nurturing environment in the classroom. He never chased money, material possessions, or accolades, often stating, "I am serving this our punniya bhoomi" — a testament to his selfless devotion to his homeland. His understanding of the political landscape was profound, yet he chose to keep his views private, holding true to his Brahminical rituals and traditions within the confines of his home. Outside of those four walls, he embraced all segments of society, ensuring that children from all background received his math teachings equally.

Through these endeavours, my father not only carried forward the teachings of Ramanujan but also instilled a passion for mathematics in countless lives, breaking down barriers and fostering a love for learning that transcended socio-economic divides.

His remarkable life and profound contributions to math education came to a close on June 20, 2005; however, his legacy endures in myriad forms. Driven by an insatiable curiosity, he engaged in research until his last breath, embodying a spirit of lifelong learning that inspired all who knew him. His extensive collection of mathematics books and his prowess in effective communication allowed him to connect across diverse audiences, making complex concepts accessible to many.

A strict vegetarian who adhered to Gandhian principles, my father was a true patriot who consistently prioritized the children of India and the betterment of his country. His unwavering commitment to education and his belief in the transformative power of mathematics continues to influence and inspire future generations of learners and educators alike.

Where thoughts meet infinity

In numbers deep, where minds reside,
P. K. Srinivasan, a guiding tide.
A master's mind, in math's embrace,
He uncovered patterns time can't erase.

From humble roots, he sought the sky,
Where equations soared and did not die.
In proofs and theories, vast and wide,
He carried truth as his pure guide.

A beacon bright in learning's sphere,
He made the abstract crystal clear.
With wisdom vast and vision grand,
He fostered the curious across the land

Now in the stars, his legacy lies,
In every sum, his spirit flies.
A legend born from thought so keen,
P.K.S lives where numbers dream.

Mirra Raman

Last grand-daughter of Shri PKS



Digital drawing Mirra Raman

Remarkable Ambassador for Mathematics

Prof. Michel Waldschmidt

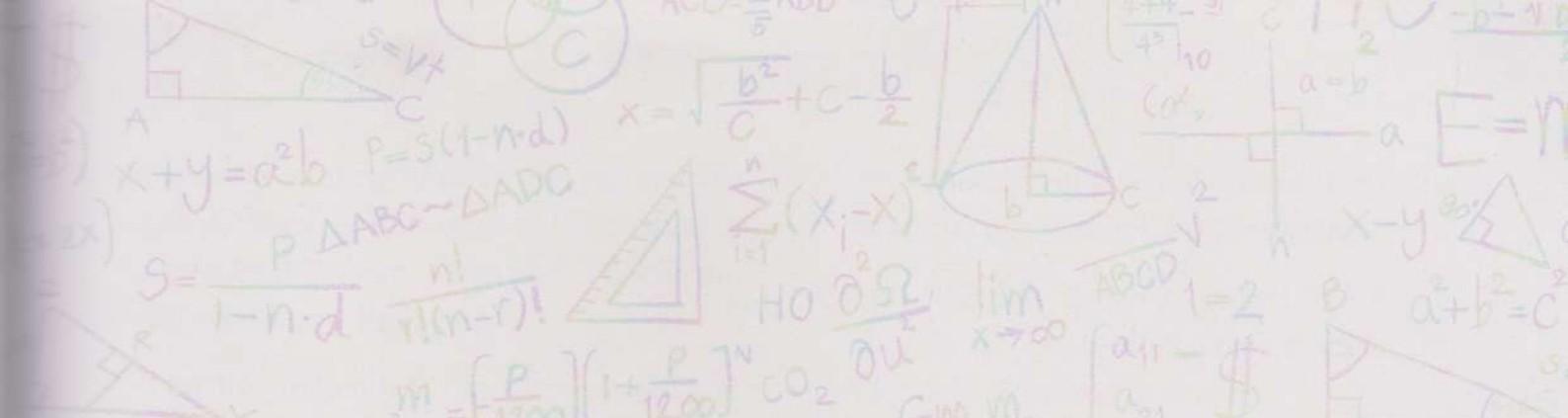
Distinguished French Mathematician



I had the privilege of meeting Mr. P.K. Srinivasan, and I was deeply impressed by him. Before this encounter, I had never come across anyone so devoted to the subject of mathematics. While I know many people from so-called developed countries, I doubt one could find a comparable example of such dedication outside of the subcontinent.

It is crucial to inspire younger generations to

pursue science in general, and mathematics in particular. Many young people view mathematics solely through the lens of what they learn in school. Conveying that there is another, more fascinating side to the subject — one that can be entertaining — is often a challenge. However, Mr. P.K. Srinivasan excelled in this. His passion for the work of Ramanujan made him a remarkable ambassador for mathematics. His son now carries on this mission, benefiting both young minds and the field of mathematics itself.



As I know him

Padmashri Prof. Dr. R. Balasubramanian

Ex Director of Institute of Mathematical Sciences

I first met Mr P.K.Srinivasan, in the early 1980's when he was visiting Bombay. And my close contact started after I moved in 1985 from Bombay to Chennai. Having participated in many AMTI programs, along with him, I could see his passion in explaining difficult mathematical concepts to the young students. He was instrumental in creating AMTI, and thorough AMTI, he used to conduct annual conferences and student workshops, encouraging the hands on experience for the students. It would be no exaggeration to say, most of the students in Chennai area, in 1980's and 90's developed an interest in mathematics mainly due to the workshops.

P.K.Srinivasan was a great admirer of Srinivasa Ramanujan and took it as his life's

mission to take the mathematics, which Ramanujan did in his high school days, to the students through his lectures and pamphlets. He collected, with the help of his students and admirers of Ramanujan, the letters written by Ramanujan and other memorabilia connected with Ramanujan. The letters appeared in a two volume book "Ramanujan: letters and reminiscences" in 1968. This book also contains letters written about Ramanujan as well as reminiscences of those who knew Ramanujan. He helped the creation of Ramanujan Museum in Chennai in 1993 which houses some of the archives. I fondly remember the great mathematical teacher in his birth centenary who played a pivotal role in inculcating a passion for mathematics in young minds.

A Fond & Grateful Reminiscence

Prof. Sivaraman

Shri P.K. Srinivasan (PKS, as he was fondly called by his peers and well-wishers) is a towering personality even among the many great mathematics teachers from India. He dedicated his entire life to the cause of propagation of mathematics—not just among audiences interested in mathematics, but among laymen too.

Thanks to his unparalleled efforts, today, several teachers including me have taken mathematics teaching as their passion and life's ambition. His students are spread across the globe, and through them, his ideology and teaching methods too continue to be disseminated. He was a champion of mathematics, who was passionate about mathematics and linked every aspect of life with it.

Shri PKS has authored several useful books for young students and professionals alike. For his lifelong efforts in disseminating mathematics to everyone, he has received several laurels and awards, the most notable

among them being the National Award for Popularizing Mathematics, from the Government of India.

His two memorial volumes about Ramanujan are considered to be treasures in knowing about Ramanujan. It is worth noting that the first copies of these books were released by Smt. Janaki Ammal, Ramanujan's wife. These two memorial volumes have become a reference point for all later books written on Ramanujan by eminent mathematicians and professionals. For example, the scintillating biography of Ramanujan, "The Man Who Knew Infinity" written by Robert Kanigel, who had travelled to Chennai around 1991, contains several references from the memorial volumes written by Shri PKS. All books written by great mathematicians like George Andrews and Bruce Berndt, the two leading mathematicians on Ramanujan's work, refer extensively to these memorial volumes by Shri PKS. These memorial volumes continue to be very useful to young students in particular and to anyone

in general wanting to know the elementary contributions of Ramanujan. If Ramanujan knew about infinity, then Shri PKS is the man who knew Ramanujan.

I fondly remember the occasions and words Shri PKS spoke to me during our interactions. I had always felt very thrilled and enthusiastic upon conversing with him and learning from him, and would feel that vibrant energy throughout the day. I am very fortunate to be one of his disciples, and I am probably his last disciple. I have always considered him my guru, mentor and a father figure.

An ardent patriot, and an empathetic and kind-hearted person too, Shri PKS would always try to help everyone as much as he could, and would explain even the most intricate math concepts in a lucid way. As far as I remember, I have not heard such

explanations from anyone I have met so far, and probably will not, in the future too.

Shri PKS has visited countries like Russia, Nigeria to teach mathematics under the Fulbright Scholarship scheme.

Shri PKS is a legendary figure in the field of mathematics, and I only wish that his dream of instituting a mathematics park or museum attains reality, where all interested young students could come and learn mathematics like never before. This is one of the best possible ways to remove math phobia among students and the general public. May we stand united in realizing this goal and contribute as much as we can. That would be a fitting tribute to Shri PKS. Let us try and realize his vision of improving the quality of mathematics teaching, thereby making mathematics learning a memorable experience for future generations.

A Slow Learner is a Good Teacher

Smt. Nirmala Raman, D/o P K Srinivasan

“Appa, I love to teach others, what I enjoy learning. But, I take some time to understand, I wish to become a teacher but I am reluctant.”

Without hesitation, he said, “A slow learner is a good teacher”. That gave me the confidence to take up Hindi and Mathematics as teaching subjects in Bachelor of Education. The Math album I submitted as part of the course was a hit that had the uniqueness of being a *Functional Math Album*. And later it was introduced in some of the teacher training colleges as part of the course completion.

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26	17	14	01	58
12	08	20	18	58
58	58	58	58	58

Birth Date Magic square

He built my strength in basic Maths through making me enjoy building Magic squares. I found joy in arriving at the Magic Number through building his Birth Date Magic Square and his centenary one.

Once when I asked my father why many primary class students find multiplication tables difficult, he asked me to try the *criss-cross* method. Through this method, visualization of basic multiplication table becomes easier, as one can practice to construct and find the product of any digit number. Take-off stage comes once they

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13	09	19	18	59
59	59	59	59	59

Birth Centenary Magic Square

observe a pattern through repetition of the activity. There is no question of failing in memory. And this *criss-cross* method helps visualize multiplication with ‘zero’ situations. This was a revelation and a revolution.

My father was constantly driven, introducing innovative teaching methodologies that helped ‘dulled students’ to hold onto Math. To remove the phobia of learning ‘Algebra’ that rhymed with ‘Gaabraa (scary)’, he developed “Algebra for 8 year olds”, a pioneering work under Central Govt. funding.

I introduced it in single teacher primary classes in Central Govt. schools where I was supposed to teach all the subjects. The joyful way of introducing Algebra through ‘*Pattern language*’ and ‘*Design language*’ at the Primary level ensured a smooth transition when the terms ‘constant’ and ‘variable’ was introduced in the middle school level.

He was not only known for creative ways of teaching Math but also for schooling other subjects – History, English & Appreciation of Art. When I was in class 10, I told my father that I had difficulty remembering the data, like, years of wars, names of kings etc. Recalling his Muthialpet-school-teaching-days, he stood up to dramatize the war situation, quoting the speech of the political leaders of the time, not missing the sequence. Similarly, his patience in teaching English to a Tamil medium student like me proved very fruitful.

I am privileged to have had my father as my Guru and my inspiration to become a teacher.

As I continue my own journey in the field of education, my father’s words echo. His belief that true teaching comes from empathy, patience, and creativity has shaped not only my approach to teaching but my understanding of learning itself. His legacy lives on, not just in the classroom, where his methods have sparked curiosity, love for the subject and meaningful learning, but in every student who discovers that the joy of learning comes from the process and not from scoring marks alone.

Slogan and Float

He took pride that he became a teacher by choice, not because he couldn’t succeed in getting into other professions. He often reiterated, ‘A teacher is a nation-builder’. He wrote letters to the Heads of the Govt. insisting ‘*Jai Aasaan*’ to be included in the slogan, ‘*Jai Jawaan, Jai Kisaan*’. He was very happy that the word ‘*Aasaan*’, which means ‘teacher’ in Tamil language, rhymed well with the Hindi words *Jawaan* and *Kisaan* and truly believed he would see it raised during his days.

On Independence Day and Republic day, he took pride in watching the program live on TV (one of the few programs he watched). On one such occasion, while watching the Republic Day floats, he thought, ‘why not Srinivasa Ramanujan’s float?’ for every citizen of this nation can get to know about our Great Indian Mathematician Ramanujan. He immediately put his thought into action by formatting a letter to the officials and sending its copies to various Govt. agencies.

In his 70s, he often said he needed to finish writing many more enrichment books to enthuse the younger generation. He co-authored a book, titled 'Mathematics on stage', along with a Bharatanatyam exponent cum teacher who continued to postpone writing her part and that book didn't see the light of the day. I experienced helplessness when I found how hard it was to convince people who had seen my father's passion for propagation of Mathematics through various resources.

My Father My Pride

My father was working feverishly, burning the midnight oil, organizing the collection of Ramanujan's correspondences and rare photographs that he preserved for decades, and see that one of its kind Memorabilia of the Mathematician Srinivasa Ramanujan could be housed for public view.

Inauguration function was planned and the Chief Guest was Sri C Subramaniam who ushered the Indian Green Revolution.

As the exact date of inauguration of the museum was not decided, my father had to work on the next task at hand. He left for Raj Ghat Besant School, Varanasi to facilitate the Math teachers and finish writing

'Mathematics without blackboard', a book that was born out of his interaction with the teachers and students.

Once again he rose in stature as a teacher par excellence by not putting forth glory over commitments. He was there for the inauguration only in spirits though he waited for this moment for several decades.

His stay at the museum premises in his late 70s, tirelessly searching for the descendants of Ramanujan and making a list, organizing programs for

Ramanujan's birth anniversary and remembrance day, planning and working for hours to organize math expos, math Olympiads, and conferences, writing more enrichment math books and articles for newspapers, designing a math kit to make math easy, working on his pet project, 'Algebra for 8-Year-Olds,' and traveling the length and breadth of India to help teachers adapt to the math kit and math lab concept—all these and many more efforts made me realize that it is humanly impossible for one person to spread the joy of learning mathematics through so many activities unless they are a true visionary. I was simply overwhelmed.

An Inspiration for Generations

Smt. Rajee Kannan

Proud and Blessed Daughter-in-Law of Shri PKS

Associate Vice President — Strategic Cloud Leader, HCL Americas

Most math-savvy writers in this book have had professional math experiences with Shri PKS that would leave lifelong memories. I have been extremely blessed to have had a special personal relationship with him, my beloved father-in-law, which I want to share here.

My first meeting with Shri PKS was one of a kind, just like him! When people hear about it, they first laugh and then express astonishment at Shri PKS's undeniable love for Math.

After my Master's degree and having worked with Kannan Srinivasan (Shri PKS's son) for six years, when we decided to get married, the next step was to meet the parents. Shri PKS wanted to meet me, and the date was set. With a thunderous heart, I prepared myself for the expected questions, hoping to gain a go-ahead for our future together.

Shri PKS was seated on the first floor of his home. I climbed each step rehearsing my answers. When I entered the room, it looked

like a typical researcher/professor's office—a room-size blackboard on one wall with Math formulas in chalk (beautiful handwriting that I had ever seen), posters, and framed pictures of international mathematicians adorning the other walls. It also resembled a journalist's workspace, filled with books, newspapers, magazines, and clipped printed matter from floor to ceiling, leaving barely any space for another person to sit. His crisp white attire, reminiscent of a traditional scholar, piercing bright eyes, and an aura that commanded respect made me feel like I was standing before the highest honorary leader of a country. I swallowed my nervousness, waiting for him to start talking.

He said in a spontaneous tone, "Let's go downstairs and talk." I climbed down with overwhelming emotions, wondering how I would stand a chance to talk to such a towering personality. In the room downstairs, it was just him, my mother-in-law, Mrs. Alamelu Srinivasan, and me seated. He asked Kannan to leave and return after two hours.

He started, "I'm happy to see that you graduated from REC, Trichy. How many years of math learning do you have?" This completely unexpected question caught me off guard, but I managed to mention my college-level math courses. Seeming satisfied, he asked next, "Your specialization is Computer Science. Can you talk about applying mathematics, like fuzzy logic?" I shifted into campus interview mode and shared whatever I could gather at that moment.

"Good, ma. Tell me what you know about Fermat's theorem?" I looked at my mother-in-law; her expression said, "This is no surprise to me at all." I explained Fermat's theorem with the zeal of a student, and there were more math questions and concepts discussed for almost two hours, with my intermittent worry that he might ask something I had forgotten in the last six years out of college or something out of the syllabus! Finally, he said, "Very good, ma." I passed Round 1!

"What are your parents doing?" he asked next - Round 2! I said, "My mother is a math teacher in high school, and my father is an English professor." He turned toward my mother-in-law. "Alamelu, call Kannan here." Kannan entered the room with much anticipation. Shri PKS then made a historical statement that I will never forget: "Kanna, she is intelligent. I'm happy and extending my blessings for your marriage." This statement revealed where his heart lay! Any words I say about Shri PKS will not suffice to portray him even 1%.

Post-marriage, all of our conversations revolved around him explaining with a childlike wonder what new math books had been published, what new scientific events were happening around the world, etc. Whenever we visited Chennai from the U.S., his shopping list always included math books with specific publisher versions and where to buy them. In those days when the internet and media were not widely available, it remains a mystery to me how international mathematicians visited his home and how he stayed informed about internationally authored Math books, seminars, and events. If he had worked in Western countries, he would have been a world celebrity today. Yet, he made a conscious choice to stay in India, bringing math upliftment to teachers, children, and underprivileged communities. A true patriot, he provided exemplary service to all communities alike.

I was extremely fortunate to work in Chennai for a few years, where he would call me most mornings and definitely every evening during my rides back from work to discuss the math and scientific topics published in daily magazines. He would send interesting booklets on ways to spark curiosity in children and encourage them to think outside the box.

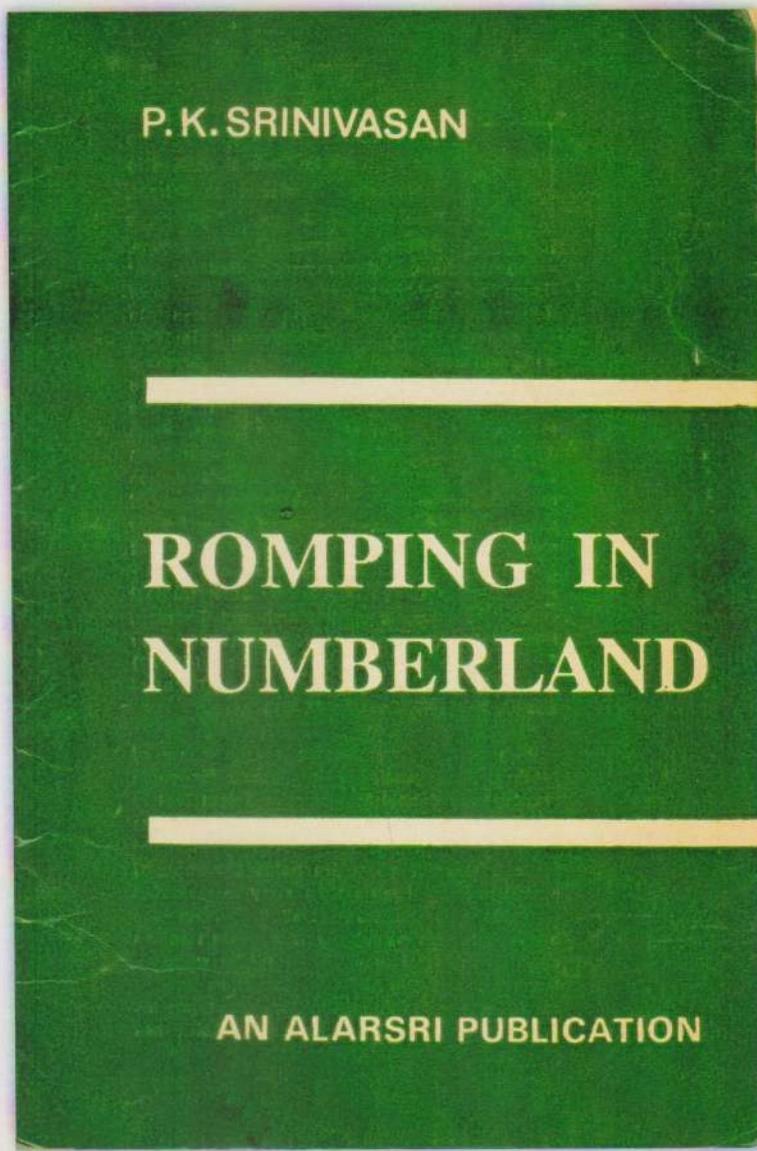
Though he was in his late 70s and not in the best of health, he frequently visited our home in Ashok Nagar from Nanganallur to spend time with my daughter, Aarthi Kannan, who was 4 years old then, teaching her playful ways to grasp concepts. The impact he created in her life is evident in her academic performance to this day. He

did the same for all the children he could reach, ensuring he made time for them every day. He organized math expos where little children and their mothers could jointly demonstrate how concepts could be grasped when taught in interesting ways. His eyes would sparkle with pride when children asked questions that might seem silly to us, but were, in his parlance, "Great ideas coming from thinkers. Let them ask" and he would build conversations based on their questions and consummate with their taking home a valuable concept. A towering

personality with a commanding voice would become a child filled with wonder in their company.

How I miss those days, and how I regret not reading everything he talked about passionately or recording our conversations, which provided an ocean of knowledge that seemed to flow effortlessly. I wonder if nature could pause time for such legendary geniuses so that generations could be fortunate enough to know and learn from them.

Books authored by PKS

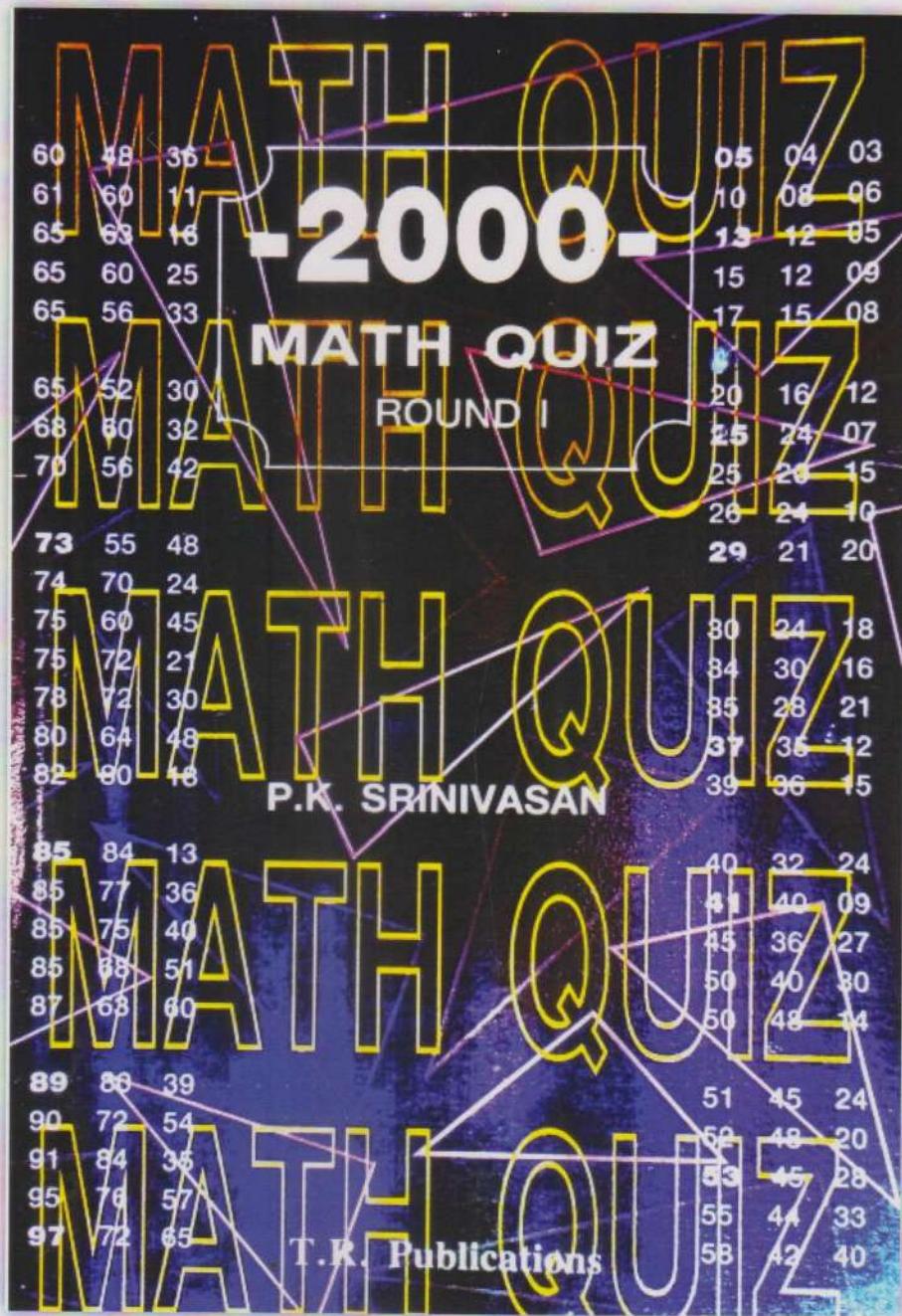


Romping in Number Land

Numbers are everywhere, and this subject invites you to explore the delightful and often surprising world they inhabit. From Fibonacci sequences found in nature to the perfect geometry of modern architecture, number land is a playful yet profound adventure. Did you know that honeycomb structures or pinecones have math hidden within them?

Numbers shape everything around us—from sports to movies, from politics to economics. Whether you're navigating the world of banking or mastering financial literacy, numbers are the building blocks of life. Journey through a world where numbers are not just symbols but the essence of how everything works!

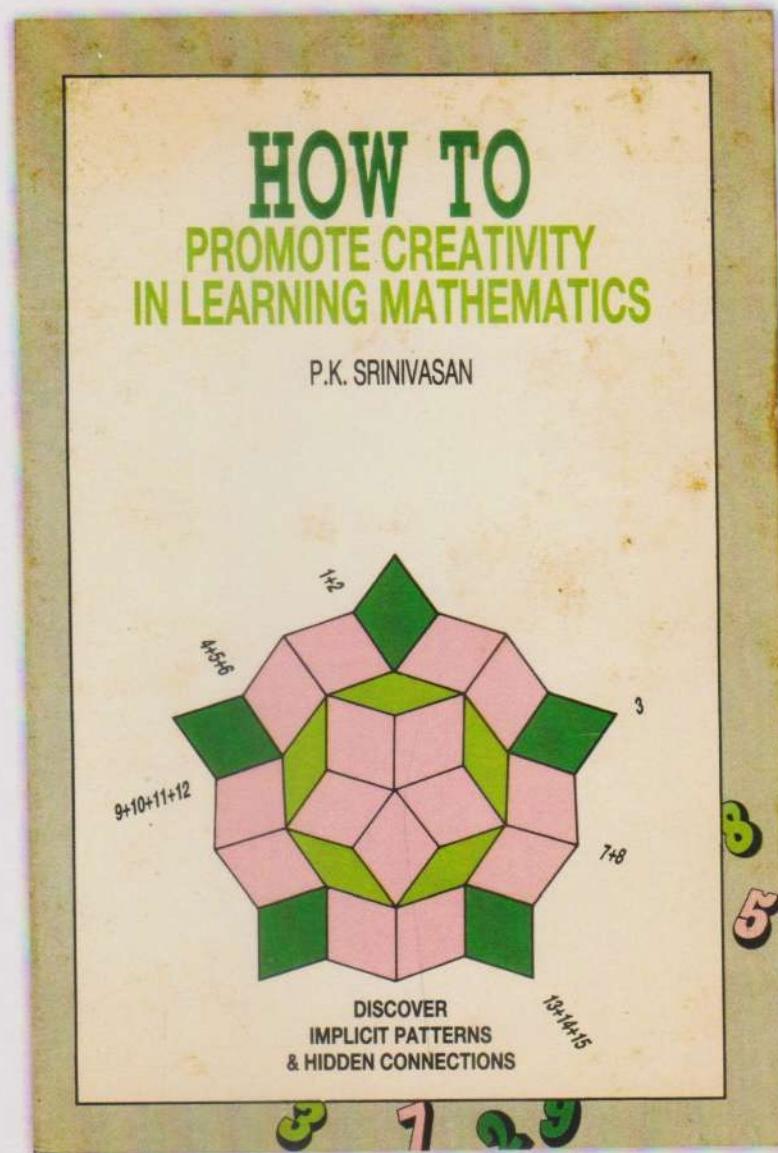
To know more, please refer PK Srinivasan's book, "Romping in Number Land."



Math Quiz Round 2000

Mathematics isn't just about knowing formulas—it's about applying logic and reasoning to solve problems. Quizzes are a perfect way to stretch your mind and test your problem-solving abilities. Do you think you can solve every puzzle that comes your way? Here, every question challenges your thinking and sharpens your skills. Take on a quiz that harks back to the pre-AI/ML or digital age, and see how far your reasoning can take you!

To know more, please refer PK Srinivasan's book, "Math Quiz Round 2000."

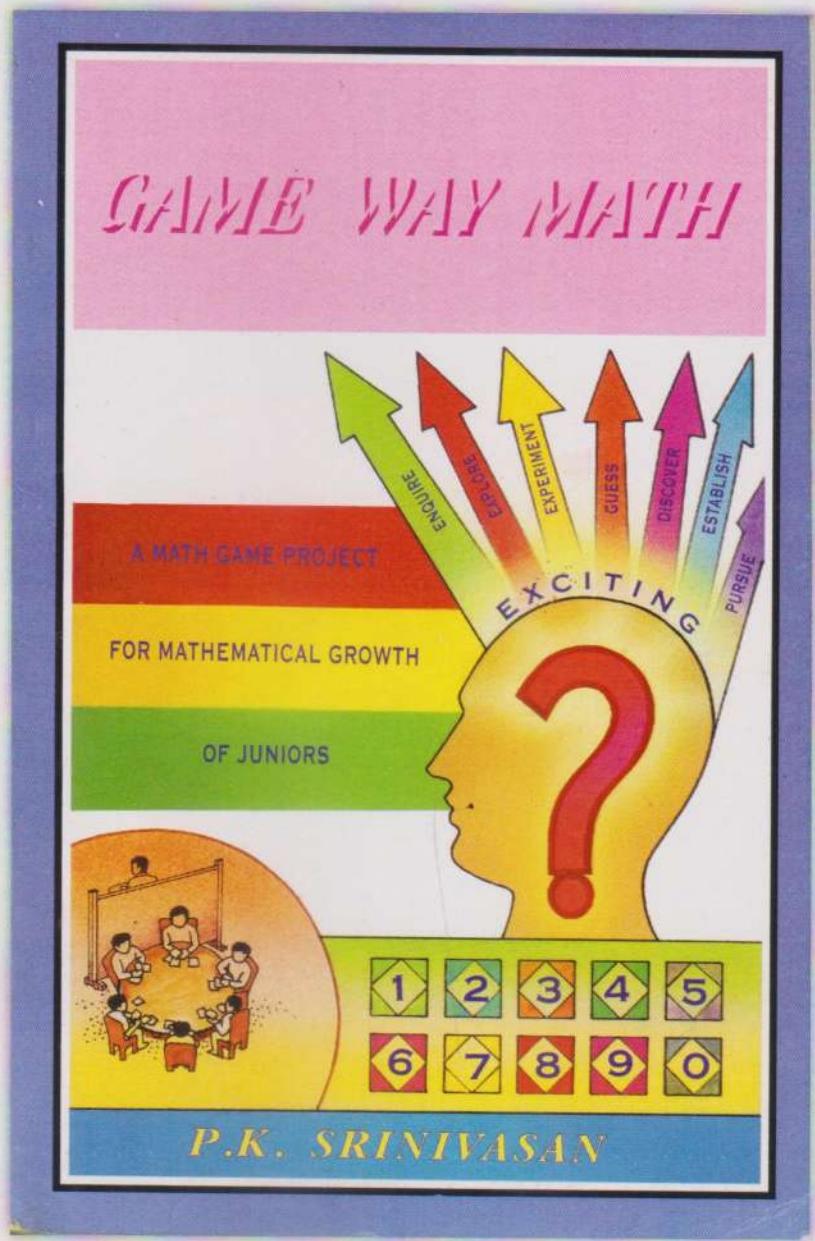


How to Promote Creativity in Learning Mathematics

Mathematics can be an art form when approached with creativity. By encouraging out-of-the-box thinking, these subjects nurture students' ability to find novel solutions and approach problems in unique ways. Whether it's solving puzzles, discovering new methods, or visualizing patterns, creativity brings a whole new dimension to learning. In fact, some of the greatest mathematical discoveries, like Ramanujan's work, stemmed from creative thought!

Today, this creative approach is more relevant than ever. With advancements in AI, IoT, and technology, mathematics is at the heart of innovation—powering algorithms, data analytics, and smart systems. The intersection of creative thinking and mathematical logic continues to shape the future, driving solutions in everything from machine learning to connected devices.

To know more, please refer PK Srinivasan's book, "How to Promote Creativity in Learning Mathematics."



Game Way Math

Learning through play is one of the most effective ways to understand mathematical concepts. Through games, students not only have fun but also strengthen their grasp of numbers, patterns, and problem-solving. Ever thought of numbers as your playmates? They can be! Games bring out the joy in learning math, transforming it into an interactive and engaging experience.

In fact, math is the superstar in sports analytics—whether it's breaking down each batter's or bowler's performance in IPL or analyzing strategies in football, basketball, or any other sport. From player statistics to game strategies, math helps uncover insights that make the difference between winning and losing. So, when you play, remember that math is always in the game!

To know more, please refer PK Srinivasan's book, "Game Way Math."

HARVESTING MAGIC SQUARES

An Enrichment Book for Junior Mathematicians

P.K.SRINIVASAN

1	2	-3
-4	0	4
3	-2	-1

$$(x+1)^2 + (x+2)^2 + (x-3)^2 \\ = (x+3)^2 + (x-2)^2 + (x-1)^2$$

$$(x+a)^2 + (x+b)^2 + (x-a-b)^2 \\ = (x-a)^2 + (x-b)^2 + (x+a+b)^2$$

a	b	-a-b
-2a-b	0	+2a+b
a+b	-b	-a



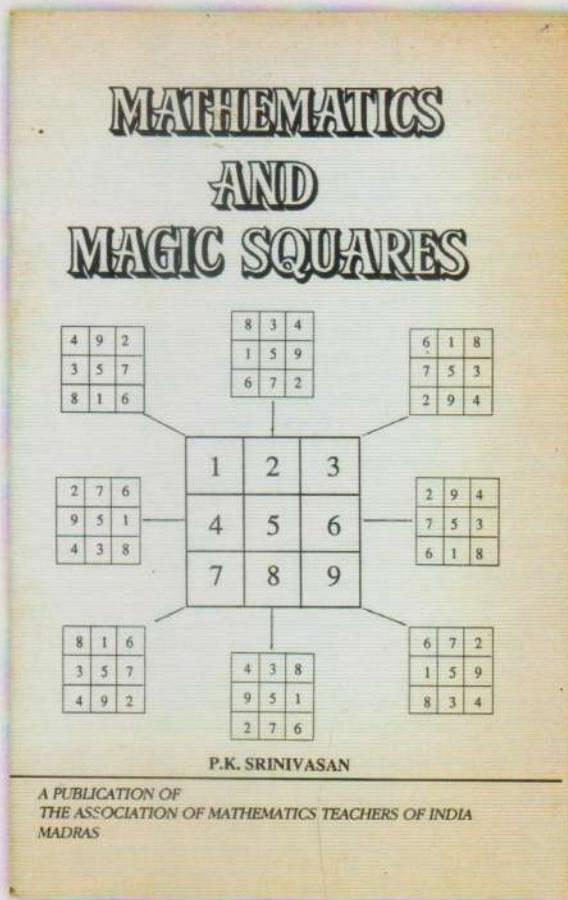
Allied Publishers Limited

Harvesting Magic Squares

Magic squares are age-old puzzles that continue to fascinate mathematicians. Each arrangement of numbers holds a perfect balance, and this subject dives deep into their construction, history, and application. Magic squares were once considered mystical by ancient cultures; today, they still dazzle us with their numerical elegance. Can you uncover the secret behind these magical grids?

From the bustling energy of New York's Times Square to the serene setting of a village square, it's always a good time to add a little fun and learn math. The beauty of patterns is everywhere, especially in traditional art forms like **Kolam**, where intricate designs are created using dots and lines, embodying symmetry, balance, and mathematical precision. Magic squares and Kolams share a common thread—the elegance of numbers and the joy of discovering their hidden patterns.

To know more, please refer PK Srinivasan's book, "Harvesting Magic Squares."



Mathematics and Magic Squares

The beauty of magic squares lies in their symmetrical perfection. This subject explores their mathematical significance and challenges you to unlock their secrets. These puzzles have been celebrated since ancient times for their beauty and balance—today, they continue to reveal the intricate connection between math and symmetry. Why not explore the patterns behind the numbers and discover the magic for yourself?

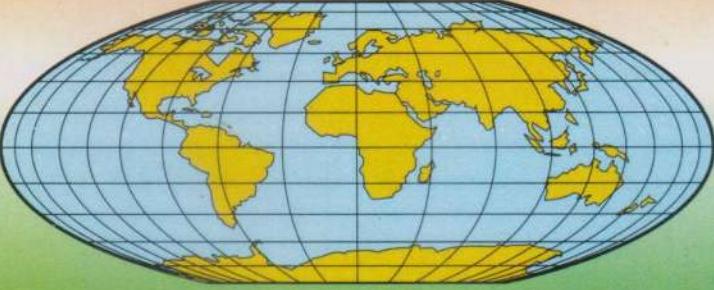
Also beyond magic squares, symmetry plays a central role in traditional art forms like **Kolam**, where patterns are created with dots and lines, often forming grids that are surprisingly similar to the mathematical structure of magic squares. Kolam not only displays beauty but also symbolizes harmony and balance—key principles in both art and math.

Interestingly, these patterns and symmetry are reflected in modern mathematical models as well. For instance, advanced statistical methods like the **K-Nearest Neighbors (K-NN)** algorithm use patterns to classify data points, identifying relationships between them based on proximity. Just as magic squares rely on numerical harmony, K-NN and similar models rely on the patterns hidden in datasets to predict outcomes and analyze trends. Both ancient puzzles and modern algorithms remind us of the enduring beauty of patterns, symmetry, and mathematics.

To know more, please refer PK Srinivasan's book, "Mathematics and Magic Squares."

P. K. SRINIVASAN

DATE MAGIC SQUARE



MR-AR- EDUCATIONAL SOCIETY PUBLICATION

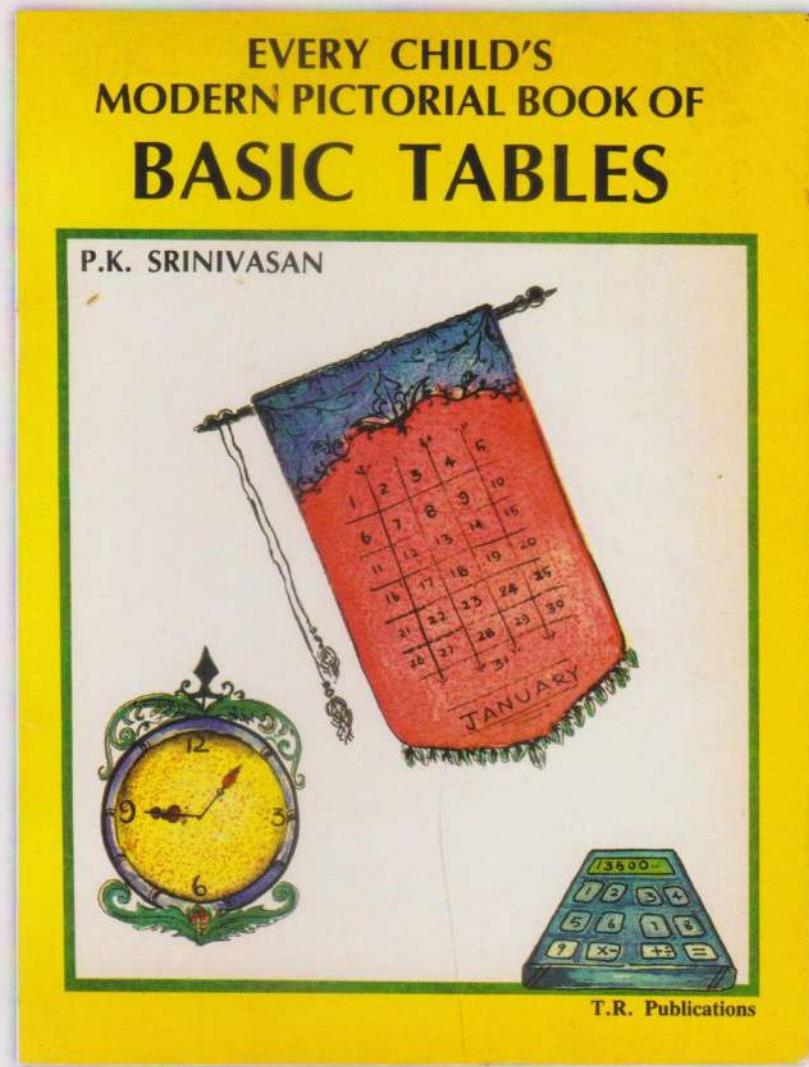
						
USA, Jul. 4	Kenya, Dec. 12	Chile, Sep. 18	Libya, Sep. 1	Singapore, Aug. 9	China, Oct. 1	Uganda, Oct. 9
						
Syria Apr. 17						Saudi Arabia Sep. 22
						
Pakistan, March 23						Ghana, Mar. 6
						
Maldives, Jul. 26						Australia, Jan. 26
						
Sri Lanka, Feb. 4						Malaysia, Aug. 31
						
U.K. Sec.Sat in Jun	UAE, Dec. 2	India , Jan. 26	Japan, Dec. 23	Germany, Oct. 3		Panama, Nov. 3

Date Magic Squares

Take a seemingly simple date and transform it into a mathematical marvel with magic squares. This subject demonstrates how dates, when carefully arranged, can produce fascinating numerical patterns. What if your birthday could be transformed into a magic square? It's a delightful puzzle that makes you think beyond just numbers on a calendar.

In fact, you can learn to create a **date magic square** to commemorate special occasions, like your daughter's birthday, your wedding day, or any other significant event. By turning these memorable dates into magic squares, you add a creative and personalized touch to your celebrations—making math a part of your joyous moments!

To know more, please refer PK Srinivasan's book, "Date Magic Squares."

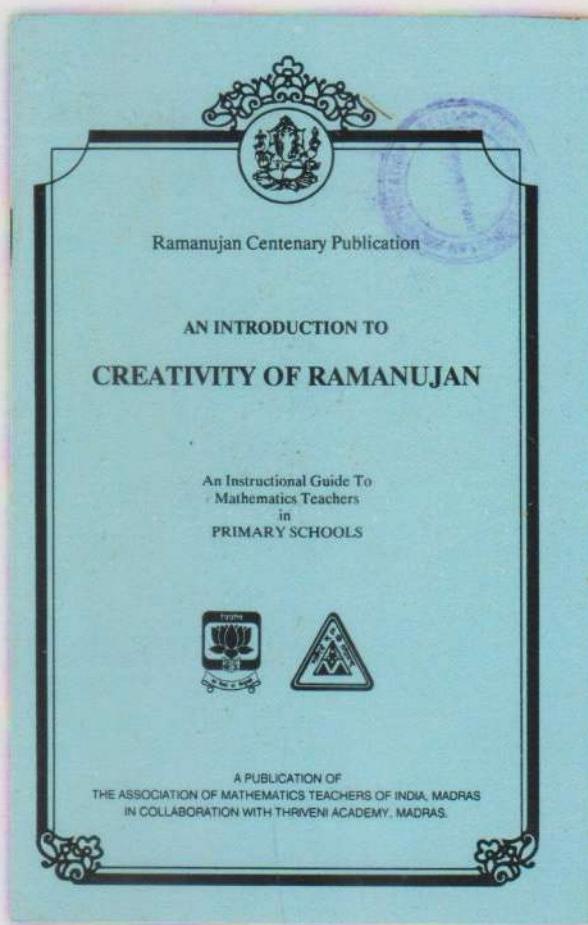


Every Child's Modern Pictorial Book of **BASIC TABLES**

Basic tables are the foundation of every child's mathematical journey. Tables emphasizes the importance of mastering multiplication, division, and other core tables, presented in an engaging, pictorial format that appeals to young learners. These early building blocks in mathematics lay the groundwork for more complex*concepts. Remember, understanding these tables today can open the door to solving tomorrow's challenges, especially in this AI world.

In a world where Google, mobile apps, and calculators seem to hold the answers to everything, it's easy to forget how math tables were once memorized by heart. While modern technology offers convenience, there's something fun and empowering about knowing these tables without the need for a device. Just think—before we relied on calculators, students used to carry multiplication tables in their heads like magic tricks! Mastering tables the old-school way not only strengthens mental math but also builds a deep, intuitive understanding of numbers that no gadget can replace.

*To know more, please refer PK Srinivasan's book, "Every Child's Modern Pictorial Book of **BASIC TABLES**."*



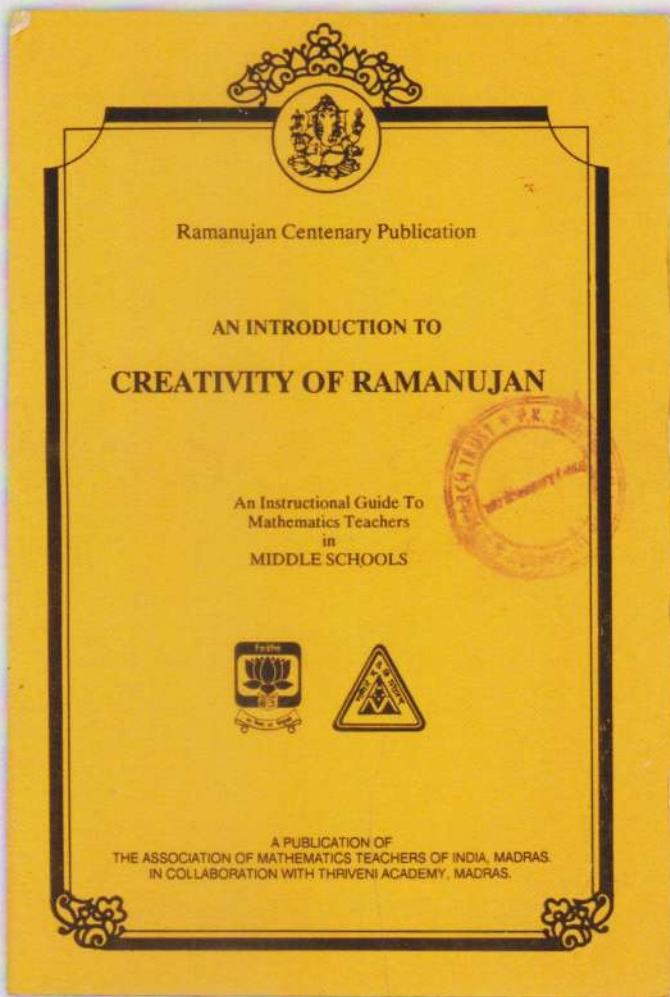
Introduction to Creativity of Ramanujan – Primary

In today's rapidly evolving and often disruptive world, understanding the essence of creativity in mathematics is more crucial than ever. As industries adapt to new technologies and challenges, the ability to think creatively and approach problems from multiple angles becomes a valuable skill.

By exploring Ramanujan's unconventional thinking, students learn to embrace curiosity and innovation, equipping them to navigate uncertainties and discover novel solutions in their future endeavors. This foundation in creative mathematics not only nurtures their intellectual growth but also prepares them to contribute meaningfully to an unpredictable world.

The genius of Ramanujan inspires even the youngest mathematicians. This subject introduces his unique methods and creative insights, making complex ideas accessible to primary students. Ramanujan's ability to see math in everything—from the simplest numbers to the most complex formulas—shows how creativity fuels discovery. His work proves that anyone, even a young learner, can think like a mathematical genius!

To know more, please refer PK Srinivasan's book, "Introduction to Creativity of Ramanujan – Primary."

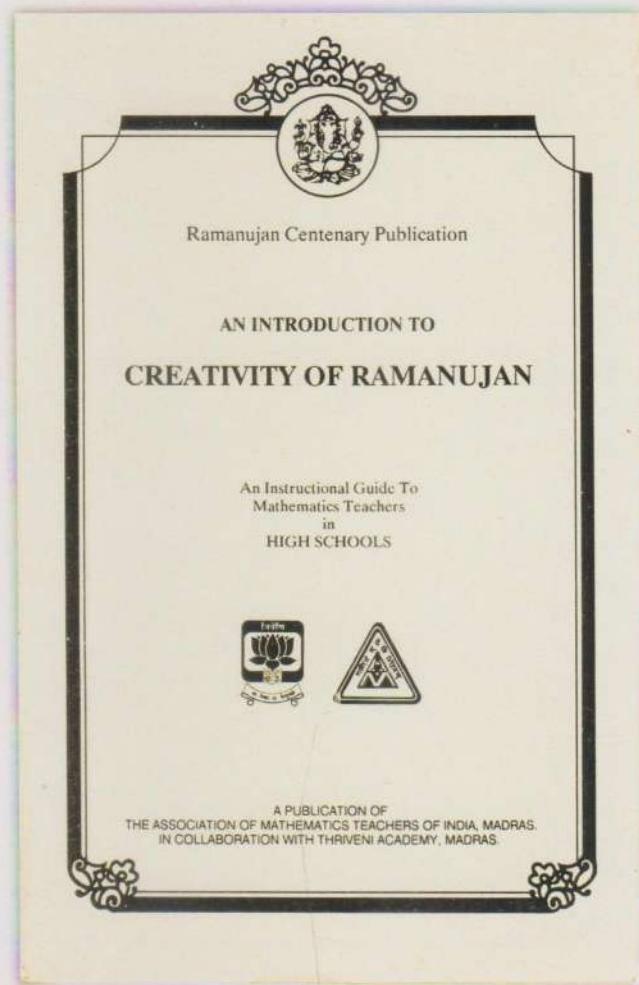


Introduction to Creativity of Ramanujan – Middle

For middle school students, Ramanujan's contributions provide a window into the power of creative mathematical thinking. This subject delves into his inventive techniques and fosters an appreciation for mathematics beyond routine formulas. Ramanujan found beauty in numbers where others saw only challenges—his legacy encourages us all to look deeper.

One of his most famous contributions is the **Ramanujan Prime**, which reveals a fascinating relationship between prime numbers and the distribution of integers. Another intriguing concept is the **Ramanujan-Hardy number**, 1729, known as the first “taxicab number,” which can be expressed as the sum of two cubes in two different ways ($1^3 + 12^3 = 1729$ and $9^3 + 10^3 = 1729$). These examples not only highlight his creative insights but also inspire students to appreciate the intricate patterns and relationships in mathematics. By exploring such concepts, students develop critical thinking skills and a deeper understanding of how creativity can transform challenges into discoveries.

To know more, please refer PK Srinivasan's book, “Introduction to Creativity of Ramanujan – Middle.”

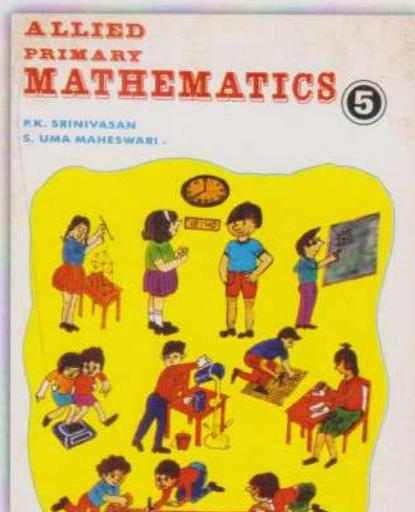
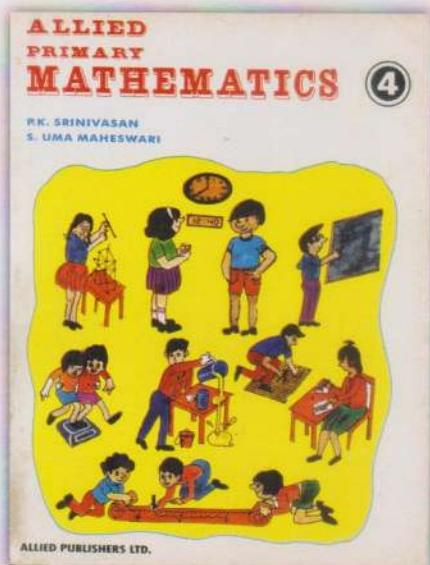
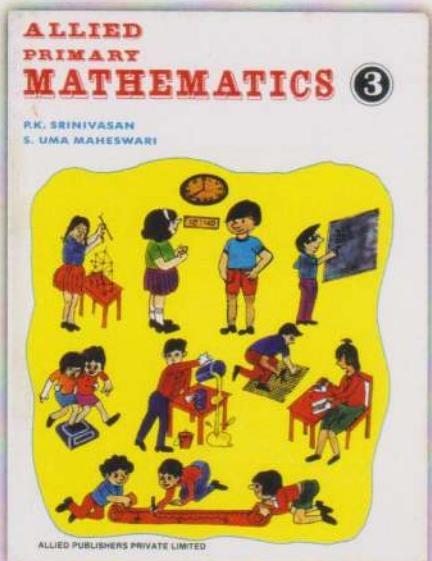
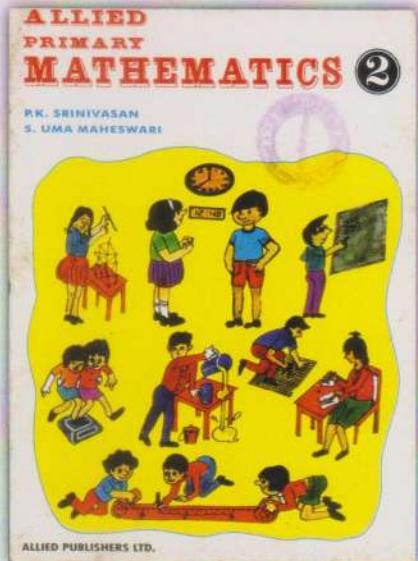
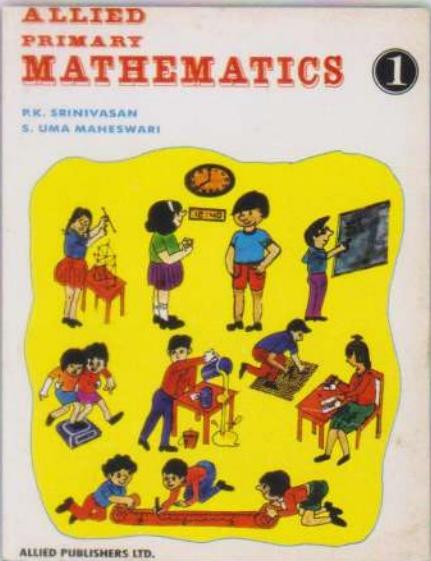


Introduction to Creativity of Ramanujan – High

Ramanujan's brilliance shines brightest in his advanced concepts, making his work particularly exciting for high school students. He applied his creativity to solve some of the world's most perplexing mathematical problems. Ramanujan's genius teaches us that thinking outside the box can lead to groundbreaking discoveries that shape the future of mathematics.

One of his notable contributions is the **Ramanujan-Naik theorem**, which explores the properties of partitions of numbers and reveals surprising insights into number theory. Additionally, Ramanujan's work on **modular forms** laid the groundwork for modern theories in number theory and algebraic geometry, influencing countless mathematicians. These groundbreaking ideas exemplify how Ramanujan's innovative thinking not only addressed existing challenges but also opened up new avenues for exploration in mathematics. By studying his work, students are inspired to embrace creativity and pursue their own unique mathematical journeys.

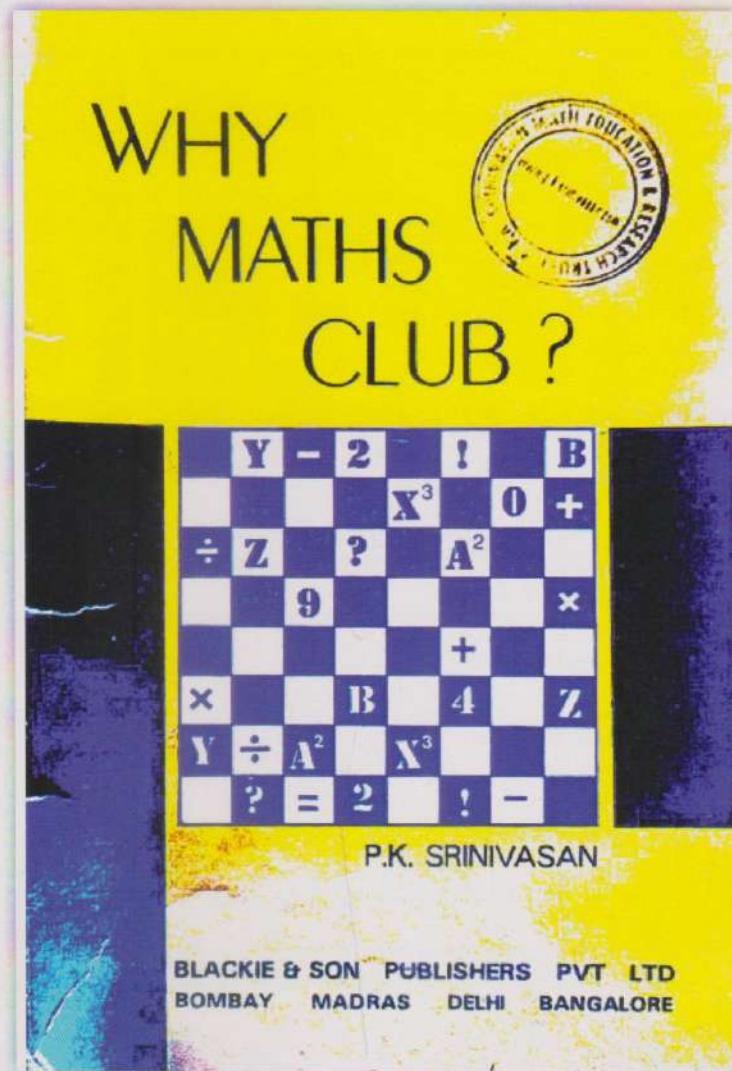
To know more, please refer PK Srinivasan's book, "Introduction to Creativity of Ramanujan – High."



Allied's Primary Mathematics I Std. to V Std.

Foundational mathematics is critical for students in primary school. This subject covers core concepts in a way that builds confidence and competence in young learners. When math is taught clearly and engagingly, it becomes a tool for future success. Help your child discover the joy of learning through well-structured and thoughtful math lessons.

To know more, please refer PK Srinivasan and Mrs S. Uma Maheswari book, "Allied's Primary Mathematics I Std. to V Std."

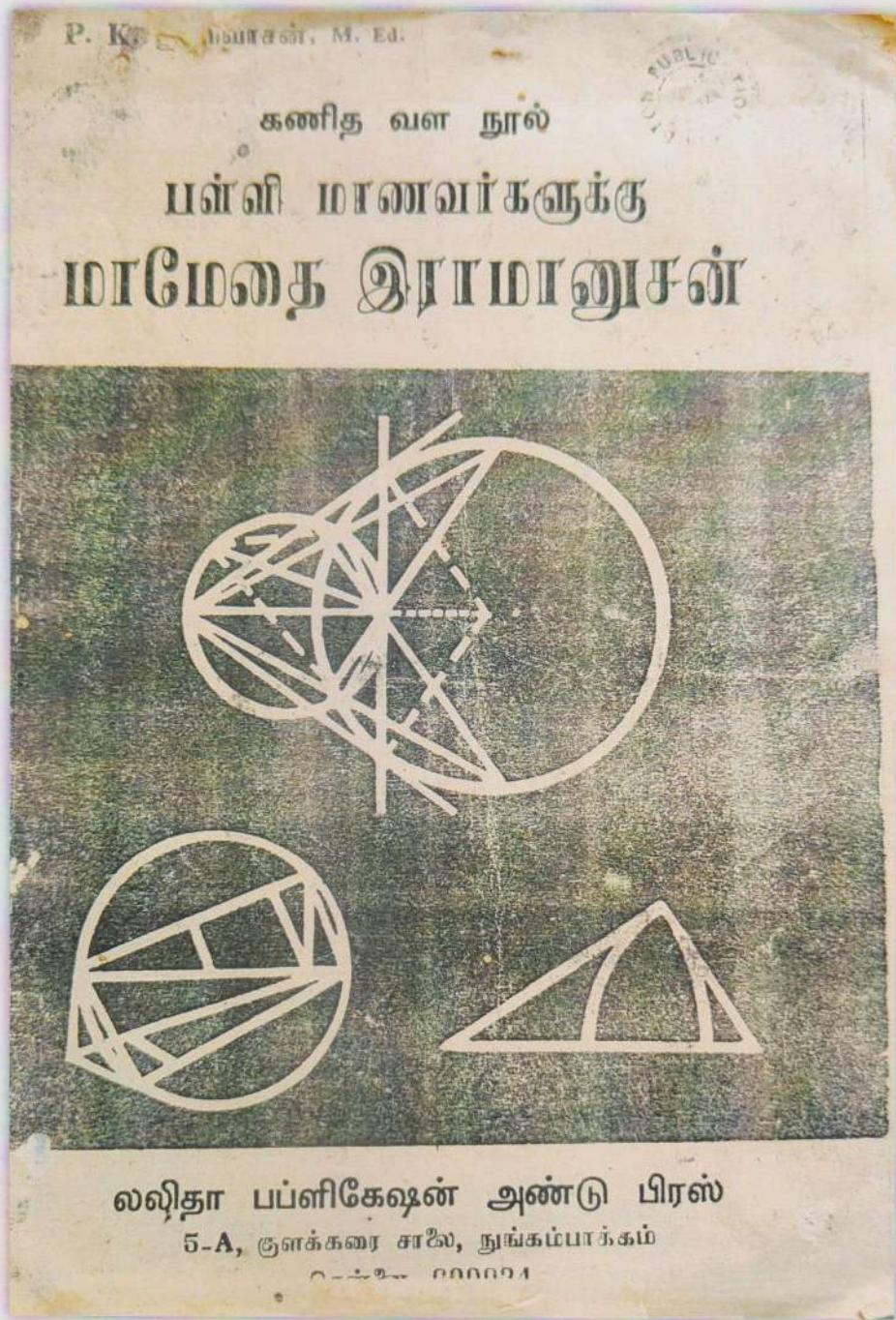


Why Math Club?

Math clubs offer a space for students to collaborate, explore, and push the boundaries of their understanding. This subject emphasizes the value of creating a community around mathematics, where learners can share ideas, solve problems, and develop a lasting passion for the subject. Imagine a place where math is not a classroom task but an exciting adventure with friends!

While we have many community clubs and TED groups that foster creativity and collaboration, why not establish a math club or math lab? A dedicated math club can provide a unique environment specifically tailored for students to dive deeper into mathematical concepts, engage in fun challenges, and connect with peers who share their enthusiasm for math. By creating a space focused on mathematics, we encourage students to explore the beauty and application of math in everyday life, transforming their perspective on the subject from merely academic to truly exhilarating.

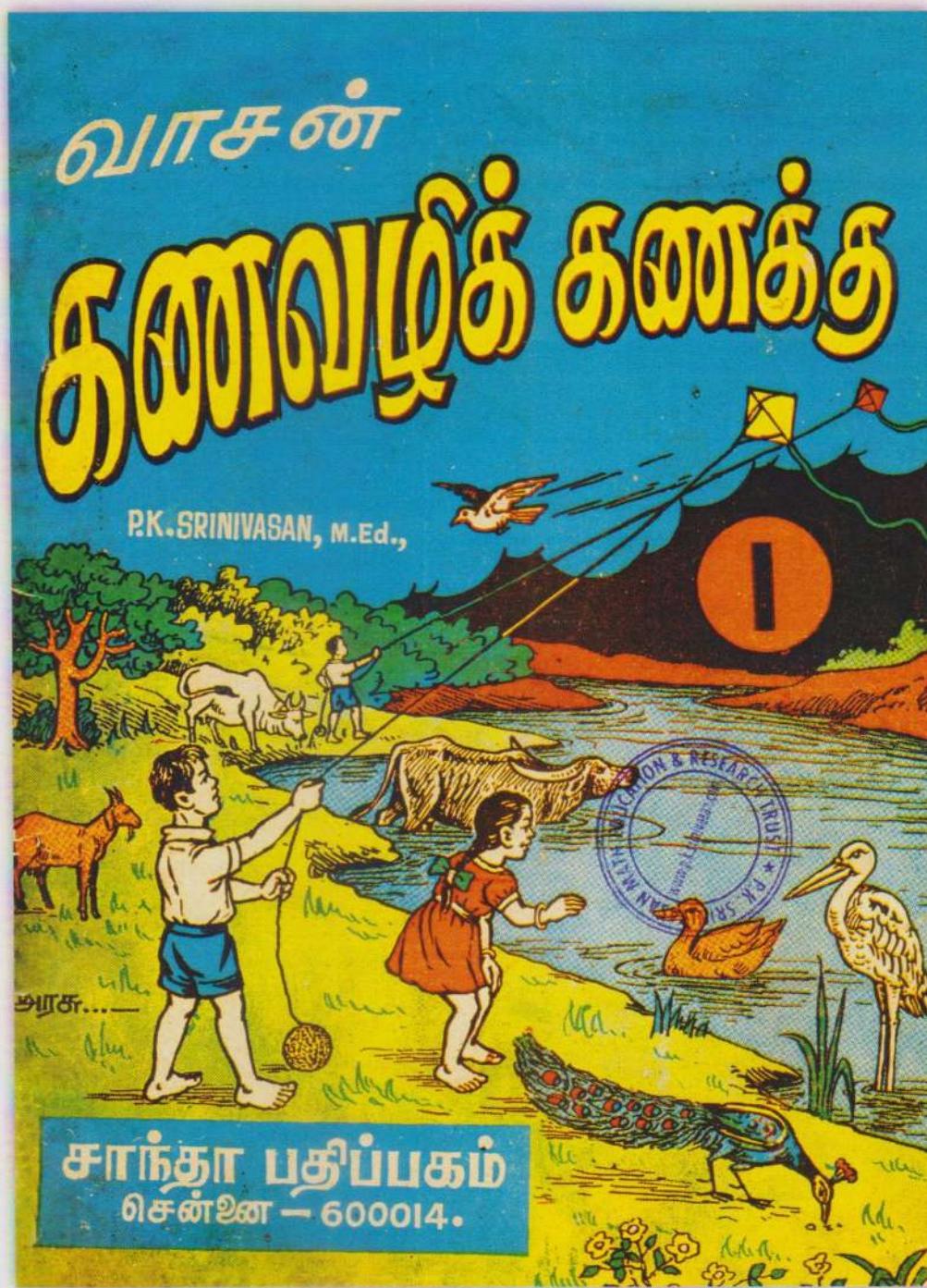
To know more, please refer PK Srinivasan's book, "Why Math Club?"



Palli Manavargalukku MaaMedhai Ramanujan

The legacy of Ramanujan extends far beyond his mathematical prowess; it embodies the spirit of curiosity and exploration. This subject emphasizes the importance of nurturing mathematical talent among students, regardless of their background. By introducing children to Ramanujan's remarkable journey, we can inspire a new generation to embrace math as a pathway to creativity and innovation. Let's celebrate the genius that can arise from any corner of the world!

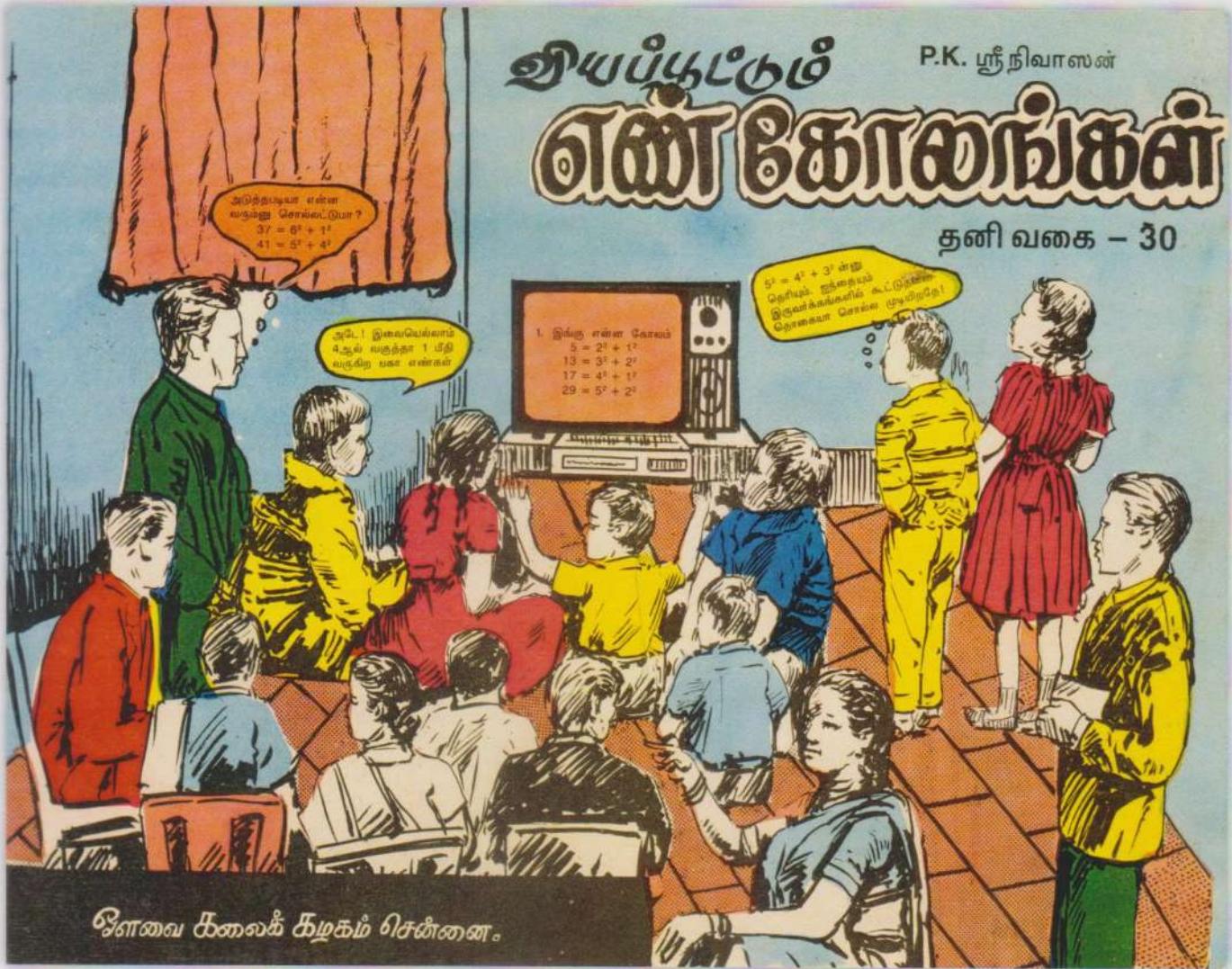
To know more, please refer PK Srinivasan's book, "Palli Manavargalukku MaaMedhai Ramanujan."



Gana Vazhi Kanakku

Mathematics is not just about numbers; it's about rhythm and patterns. This subject introduces the concept of integrating music and math, showing how the two can complement each other beautifully. By exploring the connections between musical compositions and mathematical structures, students can discover a new appreciation for both subjects. Who knew that counting beats could enhance your understanding of numbers?

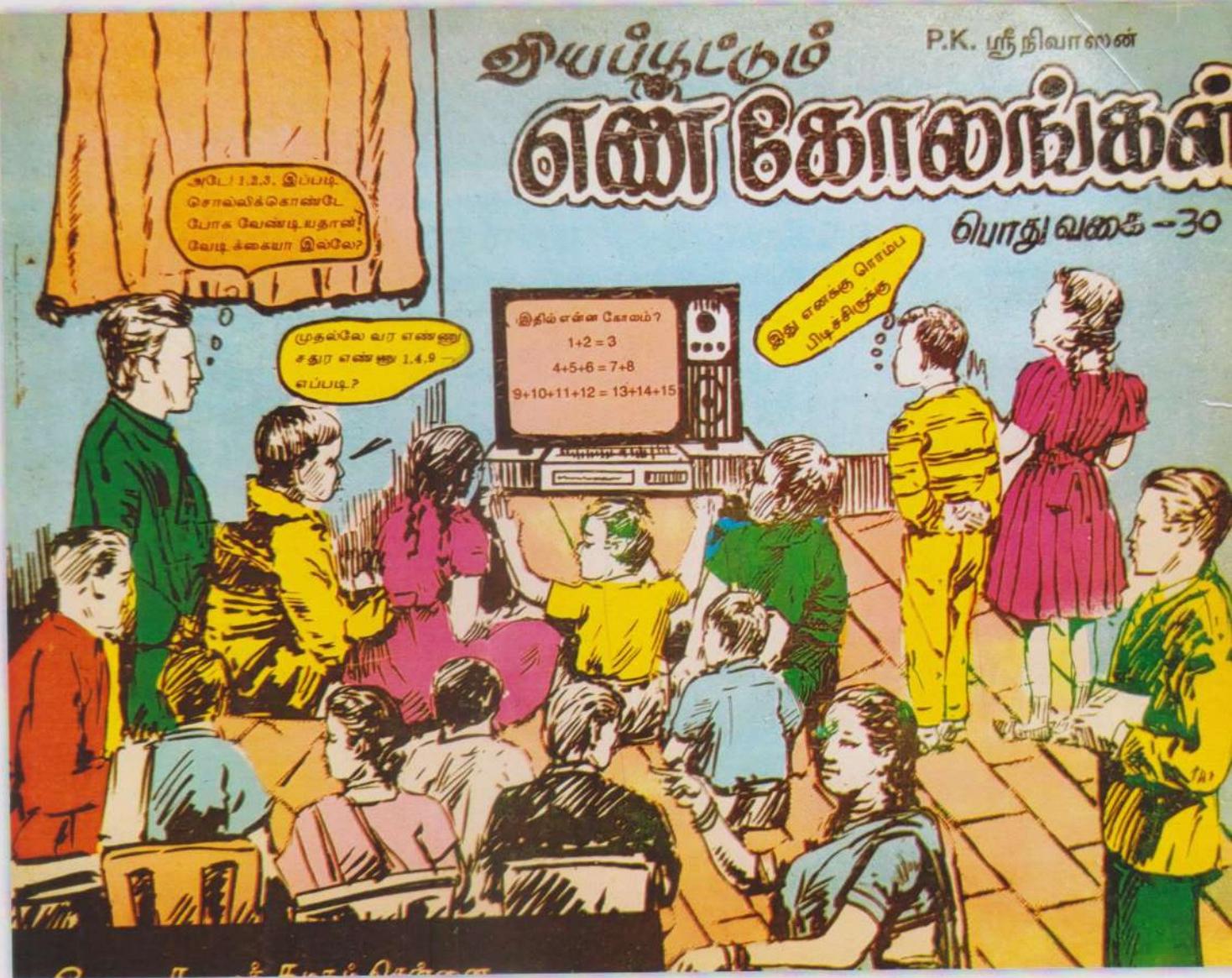
To know more, please refer PK Srinivasan's book, "Gana Vazhi Kanakku."



Viyappoottum En Kolangal – Thani Vagai

Understanding individuality in mathematics allows students to explore unique perspectives. This subject focuses on tailoring learning experiences to meet diverse needs, showing that each student's journey through math can be distinct. By recognizing individual strengths and challenges, educators can foster a more inclusive environment where everyone can thrive. Imagine a classroom where every voice is valued! Enhance your marghazhi kolam through understanding En Kolam.

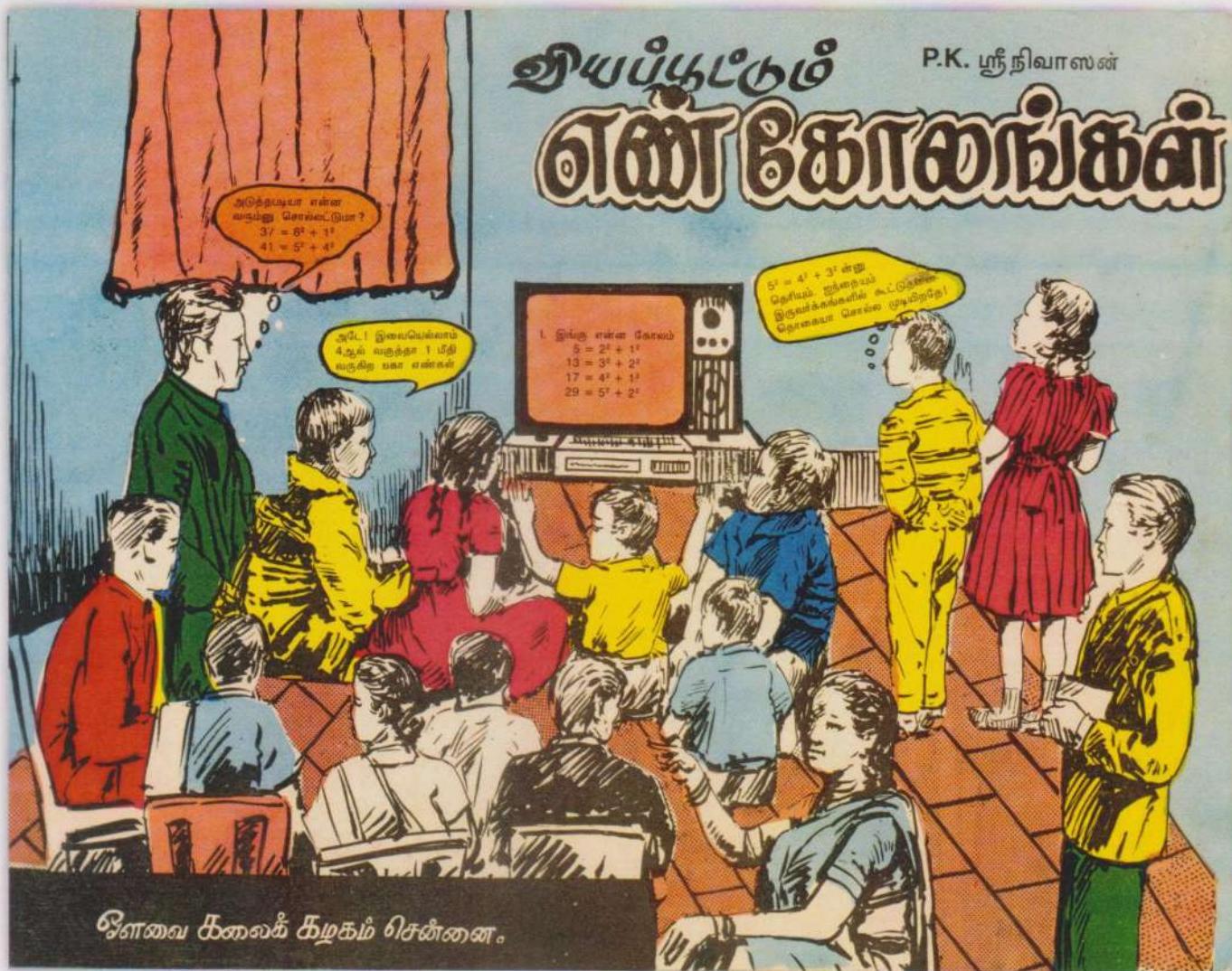
To know more, please refer PK Srinivasan's book, "Viyappoottum En Kolangal – Thani Vagai."



Viyappoottum En Kolangal – Podhu Vagai

Math can often feel universal, but this En Kolam highlights how general principles can be applied across various contexts. By making connections between different areas of mathematics, students can gain a broader understanding of how these concepts interrelate. This holistic approach encourages learners to see math as a cohesive whole, not just isolated topics. Explore the beauty of interconnectedness!

To know more, please refer PK Srinivasan's book, "Viyappoottum En Kolangal – Podhu Vagai."



Viyappoottum En Kolangal – Sirappu Vagai

Special cases in mathematics often reveal unique insights and deeper understanding. This subject encourages students to delve into exceptional scenarios that challenge conventional thinking. By examining these special cases, learners can unlock new strategies for problem-solving and develop a richer appreciation for the beauty of mathematics. Sometimes, the most extraordinary lessons come from the unexpected!

Remember, techniques like **Principal Component Analysis (PCA)**, which aids in dimensionality reduction, and **Random Forest**, an ensemble learning method that enhances predictive accuracy, showcase the power of special mathematical applications. Additionally, the **K-Nearest Neighbors (KNN)** algorithm provides a hands-on approach to understanding classification in statistics. Data analytics, often referred to as the new oil of the world, relies heavily on the principles of mathematics.

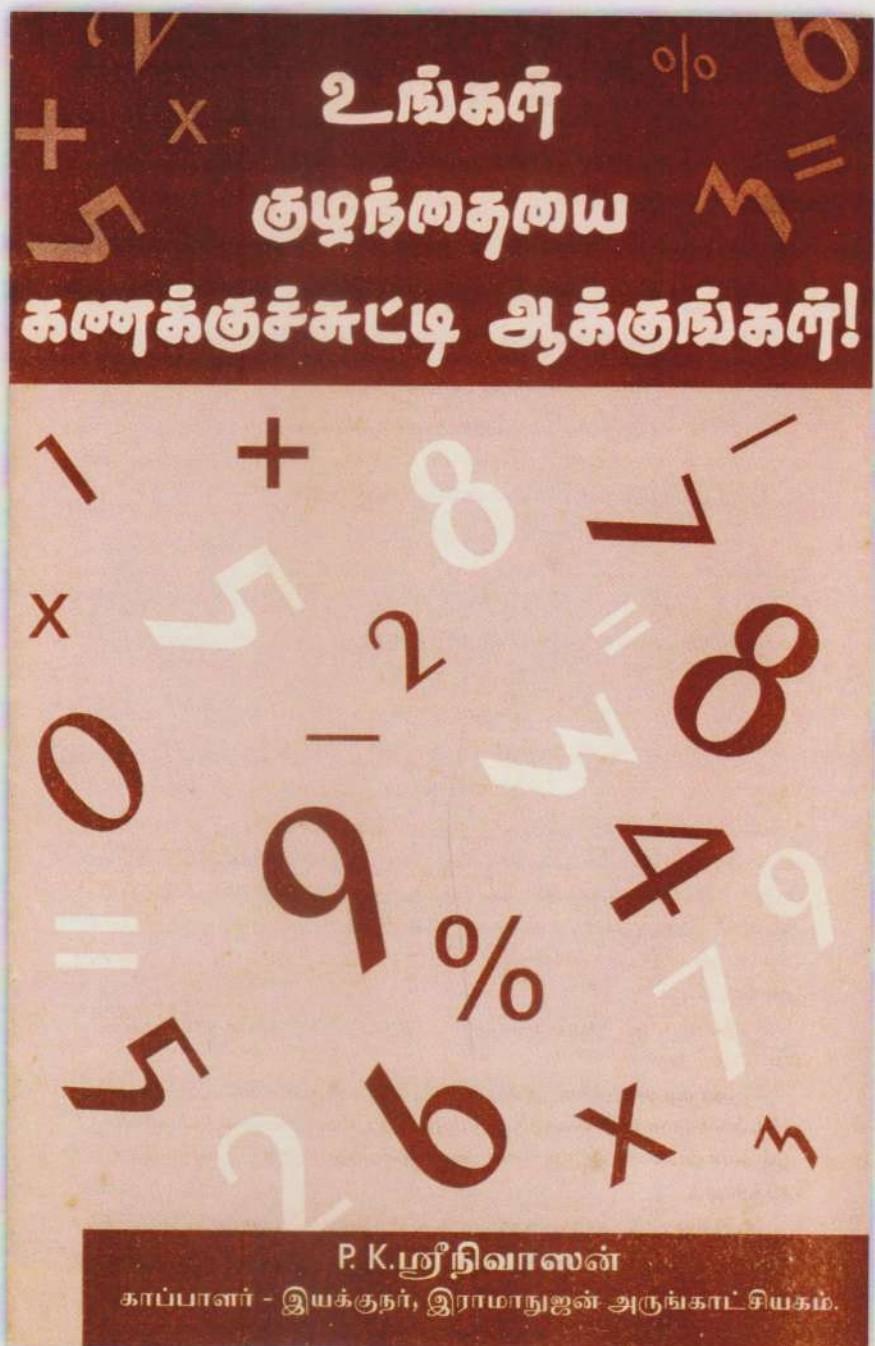
To know more, please refer PK Srinivasan's book, "Viyappoottum En Kolangal – Sirappu Vagai."



Vaipaadum Vaikkanakkum

Understanding the practical applications of mathematics in daily life is essential for students. Grip on the tables and ability to compute in your mind facilitate bridge the gap between theory and real-world scenarios, helping learners see the relevance of math beyond the classroom. By exploring various situations where math is applied, students can develop essential skills for making informed decisions in everyday life. Mathematics truly is a life skill!

To know more, please refer PK Srinivasan's book, "Vaipaadum Vaikkanakkum."



Ungal Kuzhandayai Kanakku Chutti Aakkungal!

Engaging children in mathematics at an early age sets the foundation for their future success. This subject emphasizes playful learning techniques that help young children grasp fundamental concepts through fun and interactive activities. By making math enjoyable, we can cultivate a lifelong love for learning in every child. Watch them bloom in their mathematical journey!

To know more, please refer PK Srinivasan's book, "Ungal Kuzhandayai Kanakku Chutti Aakkungal!"

கற்பியப்தில்
புதுமை

P.K. ஸ்ரீ நிவாஸன்
தேசிய வினாகாரண விகுதி பெற்றவர்

கற்பதில்
எளிமை

புதுயக

III வாய்யாடு

நவீன கல்வியியல், உள்ளவியல் கோட்பாடுகளின் படி
விளங்கும் முழு வாய்பாடு புத்தகம்.

நெற்றி ஒன்று	காட்சிப் பொருள் கள்டெள் கோலம் பல தோண்டிடவே கருத்துப் பொருள் கொண்டெள் களக்குப் புளி ஆகிடவே	கங்கள் இரண்டு காதுகள் இரண்டு ஈகைகள் இரண்டு கால்கள் இரண்டு கண்ணங்கள் இரண்டு
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மூக்கு ஒன்று		
கழுத்து ஒன்று		
நாக்கு ஒன்று		

ஓரு கை விரல்கள் ஜீந்து ஓரு கால் விரல்கள் ஜீந்து
இரு கை விரல்கள் பத்து இரு கால் விரல்கள் பத்து

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ஓளவை கலைக்கழகம், சென்னை 600 013.

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Pudu Yuga Pada Vaippaadu

As we transition into a new era, the importance of adapting mathematical education to contemporary needs is crucial. This subject discusses innovative approaches to teaching math that resonate with modern learners. By integrating technology and contemporary themes into math lessons, we can ensure that students are prepared for the challenges of the future. Let's equip them with the skills they'll need to thrive!

To know more, please refer PK Srinivasan's book, "Pudu Yuga Pada Vaippaadu."

Number Fun with a Calendar

Calendars are not just tools for tracking days—they're filled with numerical patterns. From simple arithmetic to intriguing number puzzles, this subject reveals the hidden mathematical relationships found in dates. Ever wondered why certain dates seem to show recurring patterns? Numbers and time are closely linked, and they offer endless opportunities for fun and discovery. So, step away from your routine Google and Outlook calendars, and explore the magic of numbers in a more hands-on way!

To know more, please read PK Srinivasan's book, "Number Fun with a Calendar."

Innovative Strategy in Teaching School Mathematics – Primary

Teaching mathematics to young learners requires fresh, innovative approaches that transcend traditional methods. In a VUCA and RUPT world, fostering out-of-the-box thinking becomes essential. Through interactive games, puzzles, and creative challenges, this subject transforms math lessons into enjoyable experiences for primary students. By making math fun and relevant to real-world scenarios, students not only develop a love for learning at an early stage but also cultivate critical thinking and adaptability. Imagine a classroom where every child is excited to solve a problem and explore new solutions—this is the power of innovation in teaching! In embracing unconventional strategies, educators can inspire young minds to thrive in an ever-changing landscape, preparing them for the complexities of the future.

To know more, please read PK Srinivasan's book, "Innovative Strategy in Teaching School Mathematics – Primary."

Instructional Guide to Teaching School Mathematics

Teachers play a pivotal role in shaping how students experience mathematics. This subject provides practical guidance on how to make math engaging, relatable, and accessible to learners at all levels. With effective teaching strategies, math can transform from a daunting subject to a stimulating experience. Great teachers make all the difference!

To know more, please refer PK Srinivasan's book, "Instructional Guide to Teaching School Mathematics."

Instructional Guide to Teachers

This guide offers teachers invaluable tools for making mathematics more approachable and enjoyable. By focusing on methods that inspire curiosity and engagement, this subject helps educators foster a deeper connection between their students and mathematics. Great teachers inspire their students to not just learn but to love math.

To know more, please refer PK Srinivasan's book, "Instructional Guide to Teachers."

Kuriyedugalin Kutti Varalaaru

குறியீடுகளின் குட்டி வரலாறு

The art of storytelling can enrich the learning of mathematics. Stories and using symbols focuses on using narratives to teach mathematical concepts, making them more relatable and memorable for students. When math is woven into stories, it becomes a captivating adventure that encourages exploration and curiosity. Let the tales of numbers and symbols come alive and inspire young minds!

To know more, please refer PK Srinivasan's book, "Kuriyedugalin Kutti Varalaaru."

Kaninda vaazhvinorku kalippoottum Kanakku

கனிந்த வாழ்வினோருக்கு களிப்பூட்டும் கணக்கு

Mathematics can play a transformative role in personal growth and development. This subject focuses on how math education can empower individuals to lead better lives. By honing problem-solving skills and critical thinking, math prepares learners for real-world challenges and fosters resilience. Mathematics isn't just about numbers; it's a pathway to empowerment! Problem solving helps senior citizens lead a life with some independence as memory loss is greatly resolved. Recreational mathematics can be enjoyed at any stage of one's life. Senior citizens living in old age homes can feel the thrill in doing recreational maths and enjoy doing it with visiting grand children

To know more, please refer PK Srinivasan's book, "Kanindha Vazhvinorku Kalippoottum Kanakku."

Vilayaattu Kanakku

விளையாட்டு கணக்கு

Games can transform the way we perceive mathematics, turning it into a lively and enjoyable experience. This subject emphasizes the educational value of incorporating play into math learning, demonstrating how games can enhance problem-solving skills and reinforce concepts. Picture a classroom filled with laughter, where students learn through play—this is where math becomes truly engaging!

Math is a game to play, and there are countless ways to experience this through various types of games. For instance, playing cards can help develop strategic thinking and probability skills, while board games like Monopoly introduce concepts of budgeting, investment, and resource management. By engaging in these fun activities, students not only enjoy themselves but also deepen their understanding of mathematical principles in a hands-on way. This playful approach encourages a positive attitude toward math, making it a subject of exploration rather than a chore.

To know more, please refer PK Srinivasan's book, "Vilayaattu Kanakku."

Why Math Lab?

Math labs bring learning to life by allowing students to experiment with numbers and concepts in real-time. From hands-on activities to group problem-solving, the math lab encourages students to see mathematics in action. Imagine learning math by building models and solving puzzles in a lab setting—math becomes a dynamic, interactive journey.

To know more, please refer PK Srinivasan's book, "Why Math Lab?"

Strategies on Innovative Teaching Techniques

Innovative teaching techniques can make all the difference in how students perceive and interact with mathematics. This subject explores creative strategies that encourage active participation, critical thinking, and curiosity. Teaching math can be as exciting as learning it when you use approaches that engage the mind and imagination.

To know more, please refer PK Srinivasan's book, "Strategies on Innovative Teaching Techniques."

Thank You

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This collection is personal and not intended for commercial purposes. The esteemed speakers mentioned within these pages have graciously provided video interviews in previous years, from which the text has been derived using software. For authenticity, the original tapes should be referenced.

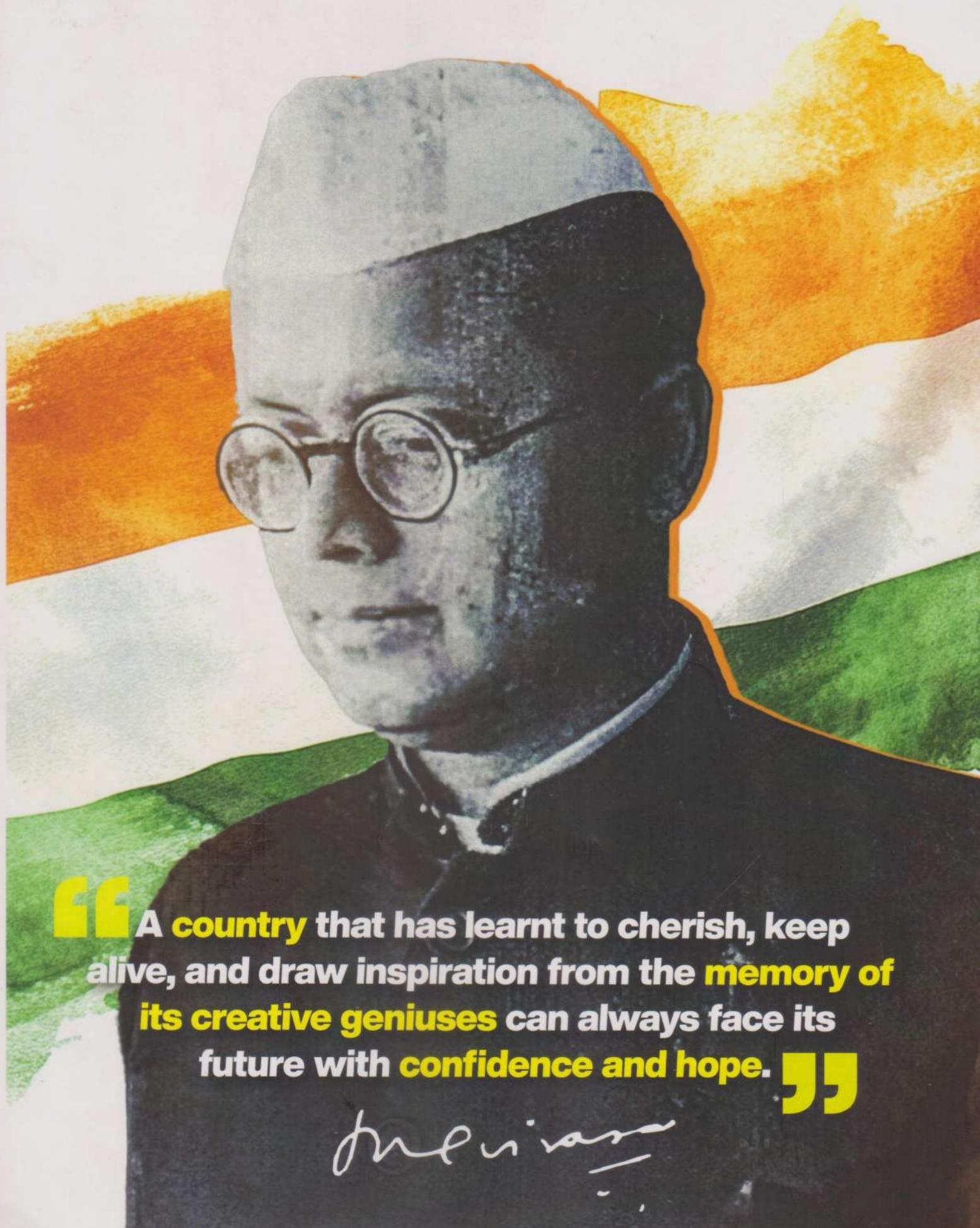
Throughout my journey, I have endeavoured to uphold my father's legacy, with the steadfast support of my wife, Mrs. Rajee Kannan. Her significant contributions have been instrumental in the creation of this book and the ongoing organization of memorial lectures year after year.

Kannan Srinivasan

Credits

1. Anjali-Unforgettable Teachers C Gopal
2. Teacher Plus – August, 2009 issue – A magazine for the contemporary teacher
3. Journal of The Krishnamoorthi Schools Issue 5: You are here: For all you Maths Teachers out There!: On the Mathematics Teachers' Conference at Rishi Valley

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“A country that has learnt to cherish, keep alive, and draw inspiration from the memory of its creative geniuses can always face its future with confidence and hope.”

Nehru